

AIRFIX

magazine

APRIL, 1968

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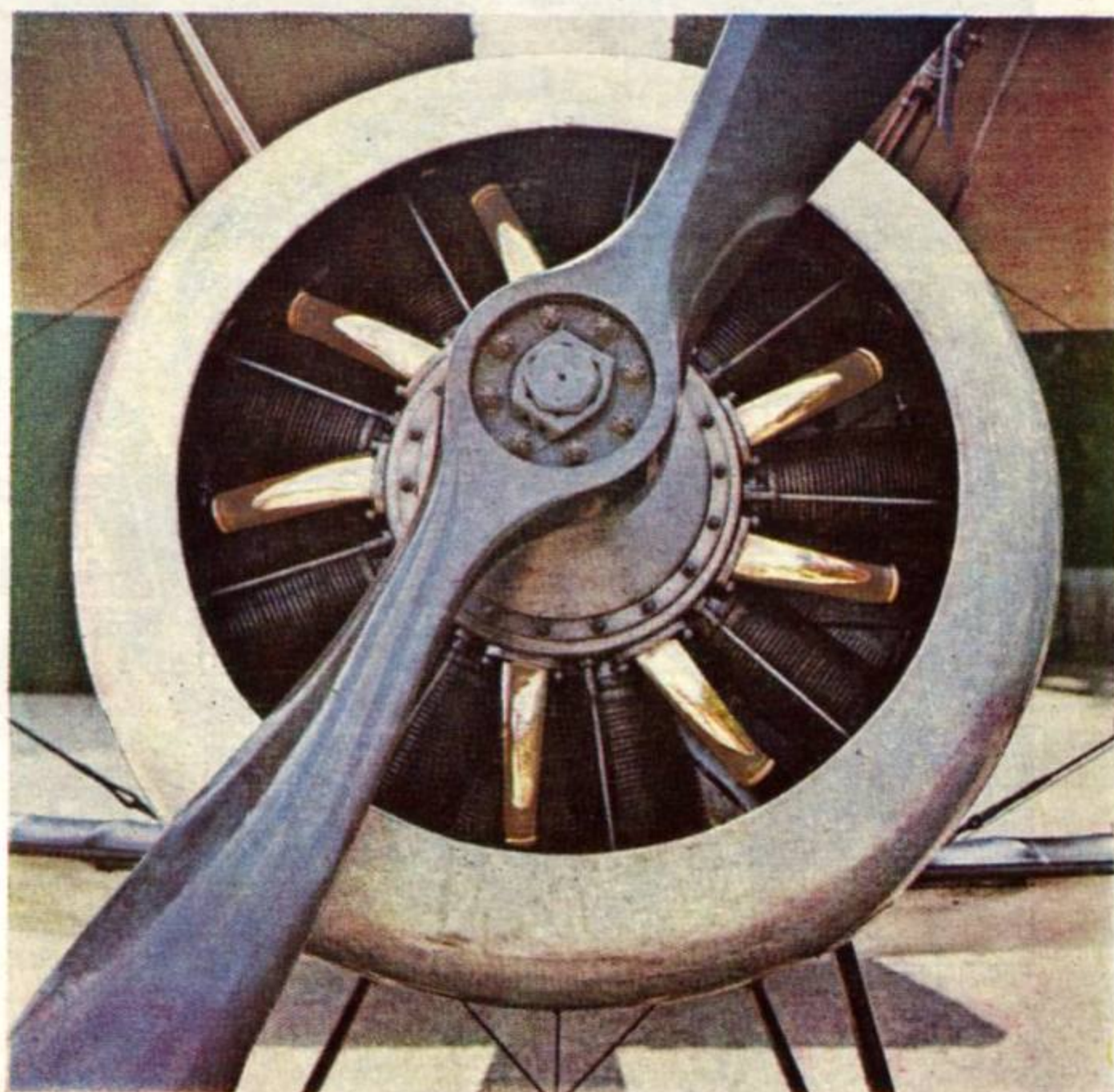


Royal Air Force

1918-68

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- ★ Famous squadrons and aircraft
- ★ Preserved RAF aircraft
- ★ Modelling the Anson XII
- ★ DH4 colour schemes and details

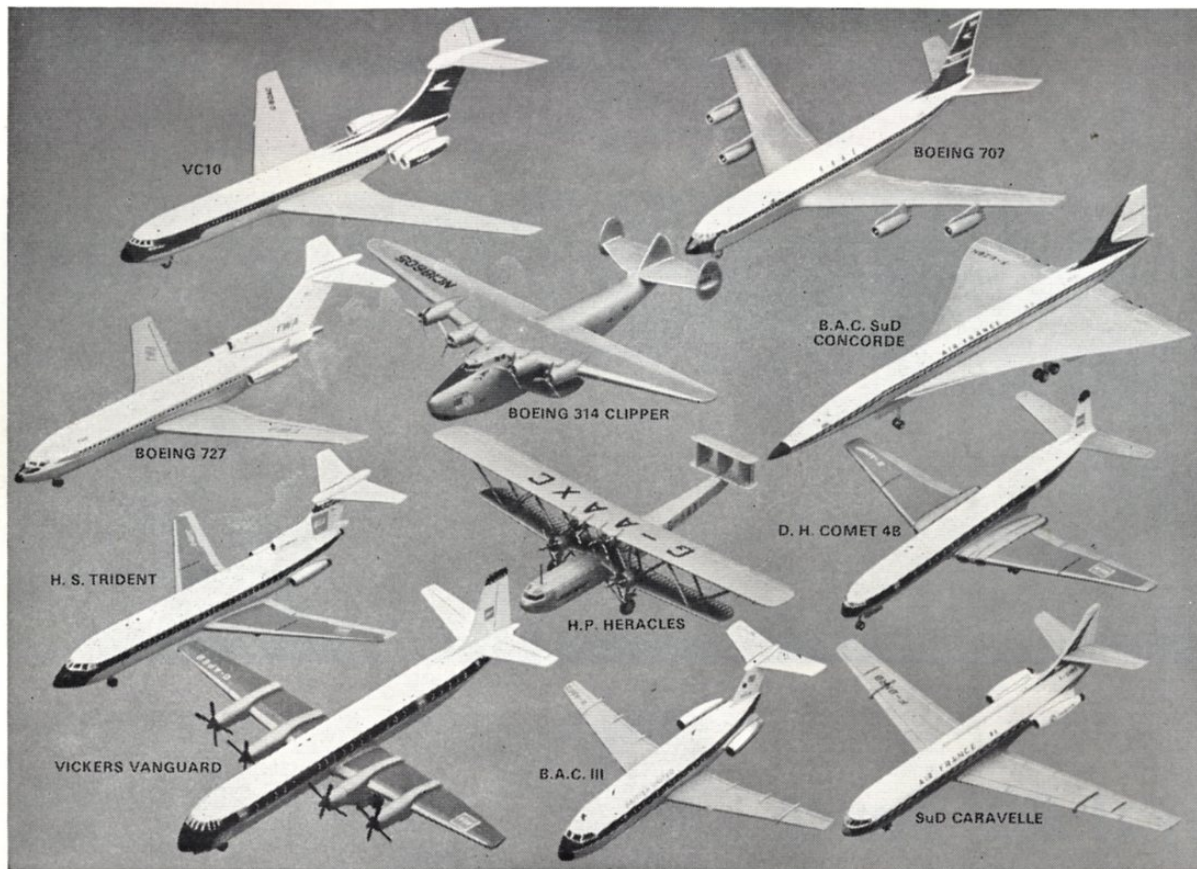


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AIRFIX magazine

AIRFIX FOR PLASTIC MODELLERS

magazine

Volume 9, Number 8

April, 1968

IN THIS ISSUE

NEWS FROM AIRFIX	Hannover CL 111a and Beagle Basset kits plus OO/HO Commando set	294
MILITARY MODELLING	1917 Mk III and IV tanks by Chris Ellis and tadpole tail variant by D. McHenry	295
GERMAN ARMY, 1914-18	David Nash deals with 1916-18 infantry uniforms	296
IN THE AIR	RAF Jubilee celebrations and other aviation news from Alan W. Hall	298
THE CHURCHILL TANK	Peter Chamberlain describes further bridging and flail variants	300
WHERE ARE THEY NOW?	Preserved RAF aircraft of the last 50 years and where to see them, by Leslie Hunt	302
DH4 COLOUR SCHEMES	Paul Leaman draws and describes simple variations for the Airfix kit	304
NEW BOOKS	Latest publications of interest to modellers	306
'FAITHFUL ANNIE'	Alan W. Hall makes the Airfix Anson into the Mk XII version	307
PER ARDUA AD ASTRA	Famous RAF types and squadrons of 1918-68 recalled by Michael J. F. Bowyer	311
BASIC RAILWAY MODELLING	Norman Simmons shows how to make a 'Dukedog' class locomotive	316
NEW KITS AND MODELS	Latest releases in the hobby field reviewed for modellers	319
PHOTOPAGE	Rare pictures from readers of FAA, RAF, German and USN aircraft	322
LETTERS TO THE EDITOR	The page where your views and ideas can win you a free Airfix kit	323

COVER PICTURE

This month sees the Golden Jubilee of the Royal Air Force, which came into being on April 1, 1918, and our pictures span the years from the Sopwith Pup with its 80 hp Le Rhone rotary engine to the Phantom with its two 12,500 lb thrust Rolls-Royce Spey engines which is soon to enter service. We show the Royal Navy F-K4, virtually identical to the RAF Phantom, as a reminder of the Navy's links with the RAF; the old RNAS became part of the Royal Air Force which controlled the Fleet Air Arm for many years after, and the RAF seems likely to take over remaining naval aviation responsibilities when existing carriers are scrapped.

(Illustrations courtesy of the Dowty Group (upper) and AIR BP, the Journal of the International Aviation Service of British Petroleum Co Ltd)

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Editor **CHRIS ELLIS**

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NEWS FROM AIRFIX

The world's greatest value in construction kits

- **Hannover CL 111a**
- **Beagle Basset**
- **OO/HO Commando Set**

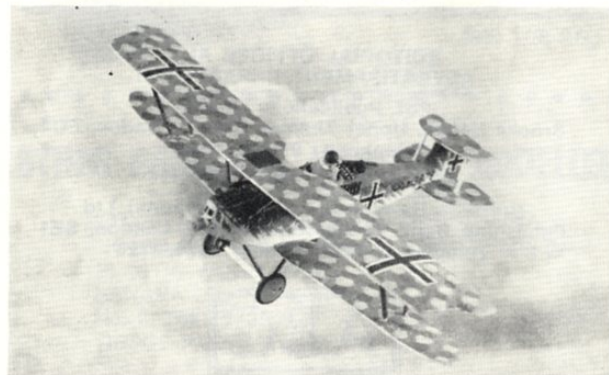
PRIDE of the Hannover railway wagon works, the CL 111a was one of Germany's most successful two-seater fighter aircraft of the first world war. Now the 'Hannoveria', as it became known to Allied forces, is a new addition to the Airfix 1:72 scale warplane construction kit collection.

Brought into service in 1917, the Hannover CL 111a was a relative latecomer but proved to be fast and manoeuvrable and almost as tough as the more down-to-earth Hannoversche Wagonfabrik products. Thus it was hard to shoot down and the 500 produced by the time of the Armistice won the respect of Allied air aces.

An unusual feature of the Hannoveria was its narrow bi-plane tail which afforded the rear gunner a wide field of fire. Fuselage mounted grenade racks were fitted for ground attack missions.

All the details of the CL 111a, its crew and equipment are incorporated in more than 30 parts in the kit. Even the texture of the wing fabric is simulated in this exact model. Detailed building instructions, directions for painting the CL 111a's multi-coloured camouflage pattern and a set of marking transfers are included.

The Airfix Hannover CL 111a kit is priced at 2s 6d.



New Airfix Hannover CL 111a with lozenge pattern camouflage offers an interesting challenge for aircraft enthusiasts.



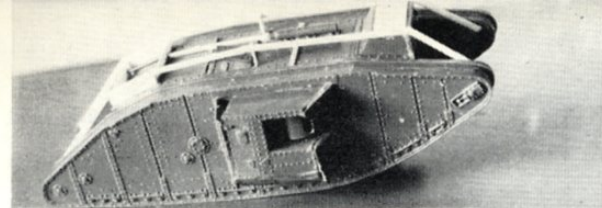
Airfix Beagle Basset 206 comes with RAF Transport Command markings.

BBRITISH aviation's most recent success—the Beagle Basset 206 communications aircraft—is the subject of the latest Airfix highly-detailed 47-part 1:72 scale kit. The Basset is equipped with seven seats, the navigation equipment of a full-scale air liner, full de-icing, air-conditioning and hydraulic systems, and has a top speed of 235 knots over a range of 1,100 nautical miles. It is a highly flexible addition to RAF Air Support Command's communication squadrons. The Airfix kit incorporates a wealth of external and cabin interior details and an authentic set of RAF transfers. Price is 3s 6d.



Grand Prix driver Jochen Rindt (right, with other competitors) takes time off from full-size cars to race an Airfix Clubman Special at the Jochen Rindt Sports and Race Car Show held recently in Vienna. A giant four-lane Airfix circuit was one of the attractions at this show and was run by Berrick Brothers Handelsge MBH who are the Airfix agents in Austria.

LATEST addition to the Airfix OO/HO scale range of figures is a set of British Commandos. Forty pieces make up the set and a full range of assault equipment includes scaling ladders, grapnels, a mortar, and canoe as well as figures in combat dress and action positions. Canoeists and cliff climbers, a radio operator, and figures in action positions with side-arms complete the set. In addition to their Commando role, many of these figures could be used to depict infantrymen. Incidentally, this set was the third one mentioned but not described in the last issue. Price of the Airfix Commando set is 2s 6d.



Above: Mk IV Male tank under construction. Sponson semi-finished shows front and rear faces in new positions before filing and filling.

IN the April, 1967, AIRFIX magazine I described how the Airfix World War 1 tank could be made into Mk I, Mk II, and wireless tank variants. Thus the time is long overdue for consideration to be given to the Mk III and Mk IV tanks, the Mk IV in particular being an important type for wargamers, as it was used by the British, Americans (in training), and the Germans, thus solving the problems of all those who request a model suitable for the enemy in World War 1 wargames.

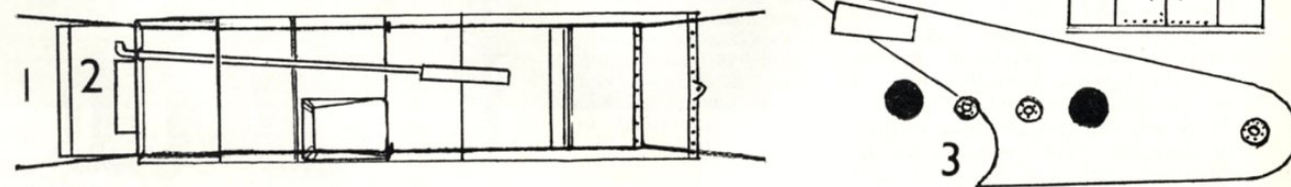
The Mk III was an interim type between the I and II and the Mk IV, which was produced in much larger numbers. It also happens to be the easiest of all World War 1 tank variants to produce as it requires the least amount of alteration from the kit. Assemble it exactly as detailed in the instructions, but omit the tail steering equipment and the exhaust manifold. Also omit the hatch from the driver's turret and cement a 16 mm x 7 mm rectangle of card over the whole turret top.

Next, cement a 1 mm strip of plastic card across the hull top between the second and third of the exhaust apertures, simulating an extra panel join. Then cut six 2 mm x 3 mm rectangles of card and cement them in pairs in inverted 'V' form above each exhaust hole to make baffle plates. For a Mk III Male, use the sponsons and guns just as they come in the kit, though you can if you wish saw the gun barrels down to leave 8 mm protruding from the embrasures, thus depicting the short calibre 6 pdr guns carried by some Mk IIIs.

Incidentally, you can if you wish use the sponsons unmodified from the kit in Mk I or Mk II Male vehicles, though in the last article on this subject I suggested that alterations were necessary. Several readers wrote to point out that sponsons in the form given in the kit and in the form shown on the Bellona Mk I drawing were to be found on all the early marks, and this is, of course, correct and must be emphasised.

Most Mk III tanks also had an extra fuel tank on the hull rear between the horns and this is made from three pieces of plastic card, respectively 10 mm x 17 mm (bottom),

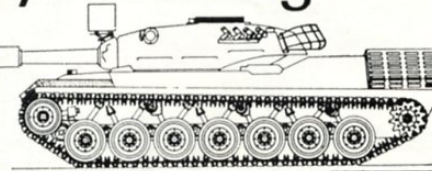
Top right: Completed Mk IV Male (left) and Mk III Male with short guns. Note stowage box, tow chain, and exhaust baffles on latter. **Right:** Mk IV Male (left) and Mk IV Female with unditching beam. Note contrast between Mk III sponson and same sponson modified for Mk IV Male. Ball machine gun mount is added to latter from scrap. **Key to Drawings:** (1) Mk IV hull top. Heavy lines mark rails. (2) Rear fuel tank. (3) Tadpole tail. (4) Female sponson. (5) Female sponson ends. (6) Female sponson top. (7) Modifying sponson for Mk IV Male—remove shaded parts, replace ends at new angles, add new section where dotted. All full size.



Military Modelling

by

Chris Ellis

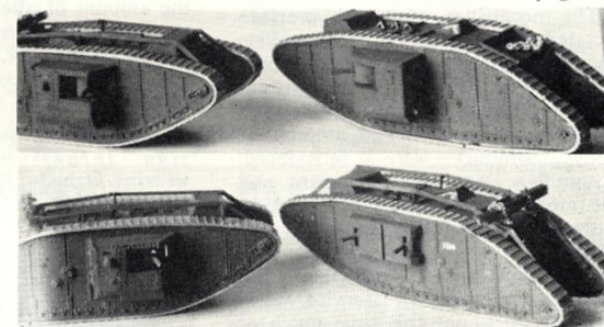


8 mm x 17 mm (top), and 7 mm x 17 mm (rear). Cement the bottom piece level with the hull bottom and cement the remaining two pieces to this and the hull rear to form a box with sloping back. On the top of the fuel tank goes a 9½ mm x 11 mm sloping plate cemented against the hull rear with its top 2 mm below the top edge of the hull.

One last item, entirely optional, is a stowage box 3 mm deep with open top built on the rear section of the hull top, the full width of the vehicle as given in the Mk IV hull top drawing. This again is made from plastic card. Tow ropes, tow chains, camouflage nets, tarpaulins, or other stores were carried in this. Finally, if you want to build a Mk III Female, you need to make entirely new sponsons from plastic card and drawings and details were given in the April, 1967, issue.

The Mk IV hull is also made up following the kit instructions but omitting steering tail equipment as before. As with the Mk III, fit a new roof to the driver's cab omitting the hatch from the kit, and add an extra panel join between the second and third exhaust holes. Build up the rear fuel tank and back plate as described for the Mk III and similarly build up the open stowage box on the rear. Now add the exhaust manifold from the kit and use heat-stretched sprue to make the long exhaust pipe as shown in the top view drawing (or use scrap plastic as suggested for the tadpole tail model). This exhaust pipe, it will be noted, passes through the stowage box, which means that notches must be

Continued on page 318



GERMAN ARMY

by David Nash 1914-18

DURING the first world war, various influences combined to alter the uniforms and equipment of the German Army. Of these influences the two most important were the Allies' economic blockade and the conditions of trench warfare.

The stringency of the blockade had the eventual effect of depriving German industry of many of the raw materials required by the war effort. The result was that the soldiers' equipment and clothing was diminished in quality and quantity. It is interesting to note that the Germans considered that their enemies lived in luxury and that many a trench raid was launched for no other reason than to acquire corned beef and white bread.

The necessities of trench warfare dictated that protection from bullets and shrapnel was of supreme importance. For this reason armies burrowed like moles, and steel helmets—together with a limited amount of body armour—were introduced. Camouflage was also important and the more gaudy aspects of the 1910 pattern field uniform soon went out of favour.

The uniform as described last month continued in service until 1915-16. At about this time much of the piping on the tunic was discontinued, which reduces the amount of painting you need to do for figures depicting this period. In late 1915 a new pattern of tunic was introduced but this was never to completely replace the older style. So slow was its issue that, two years later, the British Army Intelligence Service could write that the new uniform 'has not yet been definitely identified at the front'. There were several amended versions of these two basic tunics, as will be described later. The important facts

Part 2: Infantry, 1916-18

to bear in mind are, that between early 1916 and the end of the war there were at least four different tunics in use by the German infantry and that they were issued quite indiscriminately. When the steel helmet was first issued in the summer of 1916 there resulted another period of overlap during which both this and the *pickelhaube* were being worn alongside each other, often within the same unit. I hope that the above fully illustrates the impossibility of giving any hard and fast rules as to the combinations in which these various dress items were worn. For the modeller it gives a wide and legitimate latitude to the amount of alteration you need do to the Airfix German figure for any period of the war. Certainly you can get away with *pickelhaubes* to the end

Drawings: (A) Prussian infantryman wearing *filzhelm*, 1915. (B) Rear view of German infantryman, 1916, in 1915 pattern field uniform and steel helmet with camouflage patches painted on. Note gas mask case. (C) Front view of same man. **Opposite page:** (D) Saxon infantryman in 1917 with camouflaged steel helmet. Note regimental number on canvas gas mask case cover. (E) German infantryman in 1918 with puttees and reduced equipment. All colours described in text.



AIRFIX magazine

of 1916, which takes in the early tank actions.

The 1915 pattern tunic was known as the *bluse* and had no piping except for that around the shoulder straps. The buttons were concealed and the cuffs were simply large turn-ups tacked at the tops. The skirts were plain. The different styles of tunic in use during the period 1916-18 were the regulation ones of 1910 (with most of the piping removed) and 1915; the 1915 *bluse* with the earlier Swedish or Brandenburg cuffs and the 1915 *bluse* showing buttons down the front. A simplified system of shoulder strap piping was in use during the latter years of the war. The bulk of infantry regiments had white piping and only a few elite units, such as those of the Guard and some of the grenadier and fusilier regiments, retained their old colours. The regimental cyphers and numbers continued to be in red. To depict the *bluse* on the Airfix Germans use a sharp craft knife and carefully shave off the moulded cuff and skirt detail, and similarly remove the tunic buttons if desired.

The trousers remained as they had been in 1914. The only regulation worthy of note was that officers were ordered to wear the same style as the other ranks. Meanwhile, the great-coat changed in colour from grey to field grey, the pattern being unaltered.

Though the original *pickelhaube* remained in service until 1916, from quite early in the war it had become common practice to remove the spike when in the field. In 1915 the parade *pickelhaube* was superseded by the *filzhelm*. This was similar to the

pickelhaube but was overlaid, as the name implies, in felt. It was coloured field grey and the metal ornaments were made from 'tombak', an alloy of copper and zinc. The steel helmet was introduced in the summer of 1916, making its first appearance at about the time of the Somme offensive in July. The first issues were made to front line units at Verdun and on the Somme and by the end of the year it was the standard head dress of the entire army. On the Airfix figures this means removing the heads and replacing them with heads from Afrika Korps Germans or the Airfix armoured car crew.

The Afrika Korps helmeted heads are a little on the small side, however, and you may prefer my method, especially as you won't have a great many spare armoured car crew heads. What I do is slice off the spike from the 1914 helmet, then cut away the entire crown of the helmet, slicing through the figure's forehead and 'stepping' down the cut when I reach the ears, thus following the lower line of the 'coal scuttle' type helmet. With the 1914 helmet crown removed, I cut an oval of thin paper, slightly larger in diameter than the head, cement this across the chopped off area and cement the 1914 helmet crown back in position. The paper forms the lower rim of the 'coal scuttle' helmet and the outward sweep of this headgear is achieved by a few coats of thick paint, the paint filling in the paper rim.

The helmet was painted field grey but very often other camouflage schemes were used. Reds, browns, greens and yellows were all applied to achieve a 'dazzle' effect as shown in the drawings. Sometimes the helmet was painted and then sand and dirt were stuck to the wet paint. The ultimate in instant camouflage was to



Rear view of 1916-1918 period German troops converted from 1914 figures as described in text. Outer figures wear *filzhelms* and inner pair wear steel helmets.

cover the helmet in mud or clay. There were a small number of units which painted a badge on the side of their helmets, the colours are impossible to ascertain from photographs, but it is likely that they were some sort of state emblem. For a typical late-1915/early-1916 figure, therefore, cut the spike from the Airfix German helmet to leave only a stump and paint the helmet either brown-grey to depict a cover or field grey to represent the *filzhelm*. The 1910 field cap as worn by some of the Airfix figures continued unaltered until the end of the war, so remains correct whatever other uniform alterations you may make to a soldier in this headgear. If you run out of World War 2 heads or just get tired of sticking them on the World War 1 figures, I suggest you leave some of your troops in *filzhelms* and mix them with steel-helmeted figures, legitimate in some units if you settle for Summer 1916 as your chosen period.



Circumstances and conditions very much dictated the equipment which was carried by the soldier. During the rapid war of movement in August and September, 1914, he carried the equipment described in the last article. When the war became static on the Western Front, there was no need to carry the full equipment constantly, and a more practical combat kit was devised. In the latter part of the war the normal battle equipment consisted of a haversack, entrenching tool and bayonet, ammunition pouches, gas mask (contained in a cylindrical metal case, often canvas covered, slung over the left shoulder), and great-coat and canteen (worn together on the back). The coat was strapped round the canteen, the whole being suspended from the normal braces. Stick bombs were carried by clipping them to the belt or by putting them in the bags which were slung round the neck and taped across the back. The Airfix figures all need new ammunition pouches as drawn in the last article. A notable change occurred in 1915, when all leather equipment was ordered to be blackened, which merely means paint it black instead of tan-brown on the Airfix figures. The cylindrical gas mask case can be cut from a 4 mm length of plastic cocktail stick painted either black or khaki (if covered) and cemented in the small of the back. Strap round the chest is depicted by a stroke of khaki paint.

When in action there were two items of equipment, apart from arms and ammunition, which were indispensable; there were the entrenching tool and gas mask. Very often a man's life depended on the speed with which he could fit his mask or on his dexterity with a spade. Apart from its obvious uses, the spade was favoured by many of the veteran *Frontschwein* as a trench fighting weapon. They sharpened the edge and its performance in the hands of one of these experienced soldiers appears to have been not greatly different from that of a Gurkha kukri.

A shortage of equipment was first apparent as early as 1915, and by 1918

Continued on page 318



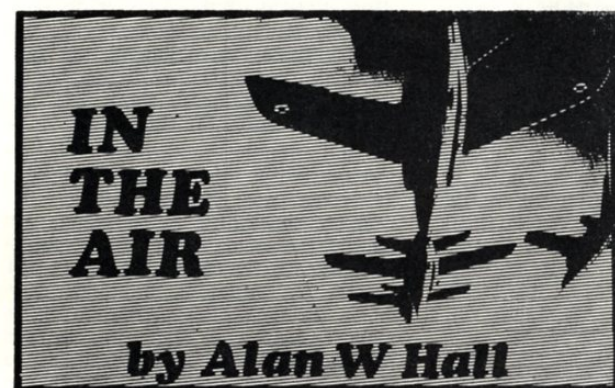
Realistic trench raid on British troops was photographed and submitted by reader Douglas Matthews of Glasgow. British and German Airfix figures were used and the smoke is real!

THE Queen, accompanied by Prince Philip, is paying an official visit to the Royal Air Force at RAF Abingdon, Berks, on June 14 as part of the celebrations of the fiftieth anniversary of the Royal Air Force.

The programme includes an opening ceremony in which the Royal salute will be given by the Guard of Honour mounted by The Queen's Colour Squadron of the RAF. It will be followed by a flying display, a static aircraft display and an exhibition depicting events in the history of the Royal Air Force.

In the flying display, all home commands will present items. There will be a fly past and demonstration of vintage aircraft and demonstrations of the new aircraft coming into service—the Nimrod, the Phantom and the Harrier. The static aircraft display is planned to cover aircraft which have operated in all the roles of the RAF from 1918 to 1968.

The historic exhibition is being held in the Laing hangar at Abingdon, one of the largest hangars in Europe, built for Beverley aircraft servicing. The set pieces in this exhibition

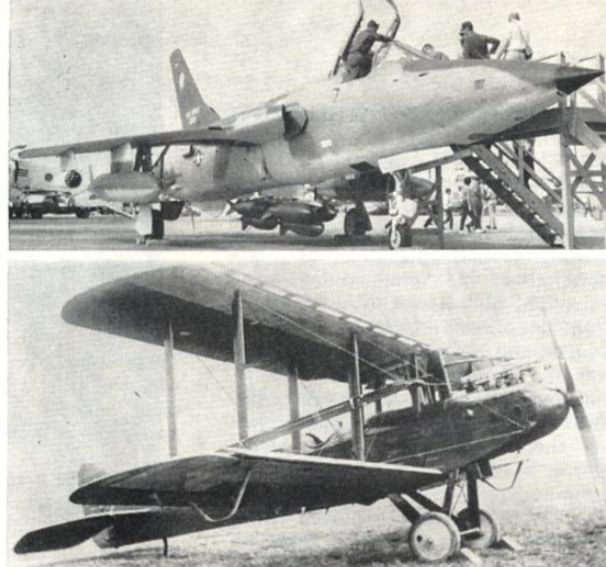


are being prepared by the home commands. They will show a large collection of old and new weapons, equipment and uniforms. A particularly interesting item is the last known surviving Hawker Hind, donated recently to the Royal Air Force by the Royal Afghan Air Force and mentioned in last month's column. The 'History of Air Power' collection of model aircraft will also be on show in the static exhibition. It will contain an example, in model form, of almost every aircraft used by the RAF since its formation, many of them, built by Alan Hall and Richard L. Ward, being originals of the Airfix conversions described in AIRFIX magazine. This month's Anson model (page 307) will be among them.

The day of the Queen's visit will be a private Royal Air Force Day, when serving members of the RAF and guests of the Air Force Board will be joined by retired members. Among the latter will be some Founder Members—those who were serving on April 1, 1918. The entire exhibition and flying display will, however, be open to the general public on the following day—June 15.

The choice of Abingdon as a base for the event is particularly fortuitous as the station has been involved in a number of important events in RAF history. Opened in the early 'thirties, the station operated as a bomber base until the outbreak of war in 1939, when it became the base for an Operational Training Unit preparing bomber crews for the strategic bombing offensive against Germany. However, as the offensive gained momentum, the Whitleys, and later the Wellingtons, which equipped the OTU, were also sent on operations over enemy territory.

After the war the station was transferred to Transport



Top: Air National Guard in camouflage. Photographed by Thomas M. Barnett at a USAF Open House in the States last year, this F-105 Thunderchief sports the minuteman symbol and the words 'NEW JERSEY' on the fin in white. Serial is 75733. **Above:** DH9 in disguise. Handley Page Ltd designated this aircraft HP17 for experimental work in the development of the Handley Page slot. These can be seen along the leading edge of the top wing. The purpose of the 'crossbow' arrangement on the inner struts is not known.

Command, and it was from Abingdon that the first RAF aircraft to take part in the Berlin air lift—an Avro York—took off on July 1, 1948. Since the early 'fifties, this station has become increasingly well known as the home of No 1 Parachute Training School and through its gates have passed many thousands of soldiers on their way to make their first parachute descent.

In 1955 it became the first operational flying station to be granted the freedom of an English town, the Borough of Abingdon conferring the honour to mark the strong bond of friendship that has always characterised relationships between the town and the station.

Today, RAF Abingdon is part of Air Support Command operating closely with units of the British army through the various units based there. Particularly the parachute school and No 46 Squadron whose Andover aircraft provide close tactical support for army units in the field. The station also houses the Andover Conversion Unit; the Air Transport Development Unit and the Mobile Air Movement Squadron. This last unit provides teams of specialist officers and airmen who supervise the loading and unloading of aircraft on overseas airfields which have no regular RAF ground handling organisation. It was most recently involved in the intricate details of the British withdrawal from Aden.

Air National Guard Mobilises

SEVERAL of the transport wings of the Air National Guard which I visited during my trip to the United States last year have recently been mobilised as part of President Johnson's call-up of reserve forces to help deal with the situation in Korea and Vietnam. Coincidental with this I have received a number of photographs of ANG F-105s in camouflage. Air National Guard Units engaged in the tactical role have recently received this new paint scheme. It is standard tri-tone similar to the regular units but the association with ANG is shown by the minuteman symbol and the State name picked out in white on the fin. These markings were, of course, removed when the Squadrons were activated as they became part of the full-time air force.

AIRFIX magazine

Super One-Eleven Flies

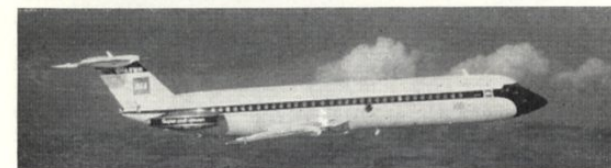
THE first of eighteen BAC One-Eleven 500 jets for BEA—to be called Super One-Elevens in Corporation service—made its maiden flight from the British Aircraft Corporation's Bournemouth (Hurn) airport factory on February 7, ten weeks ahead of the programmed date.

The first commercial services with the new jet are scheduled to start on November 1, principally over BEA's extensive network of domestic routes in Germany where Super One-Elevens will take over from prop-jet Viscounts.

Mr Henry Marking, Chief Executive of BEA, said on the first flight, 'We are placing great reliance on this new Super One-Eleven as an important addition to our fleet, and when it enters service on our German internal routes in November it will provide BEA with the latest and best equipment of any airline operating these important services.'

The first of the Super One-Elevens is the 144th airliner that BAC's Weybridge Division has built for BEA since the airline was formed in 1946. On the production line at Hurn a further six aircraft of the BEA order are in various stages of final assembly. All eighteen will be in BEA's hands by the spring of next year.

The first flight of a BAC One-Eleven 500 prototype (G-ASYD) took place on June 30 last year—six weeks ahead of target date. Since then, flight test results have shown per-



formance gains in excess of specification in respect of improved airfield performance both in take-off and landing distances. Test data shows that further developments of the airframe will enable higher take-off and landing weights to be offered leading to still greater overall profitability through improvements in payloading range characteristics.

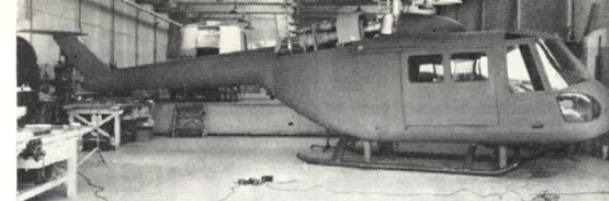
The final stages in fully assessing definitive BAC One-Eleven 500 performance, with the aircraft powered by 12,000 lb Rolls-Royce Spey 512 engines, began on February 14 when the BAC prototype G-ASYD was due to leave for a six weeks programme of performance certification trials in Spain. Take-off and landing trials will be made at Madrid and climb performance checks from Valencia.

Performance data will, for the first time, be processed on the spot using BAC's own Elliott 903 desk-size computer which is being flown out for the trials. BAC's chief pilot for the trials in Spain is Mr Roy Radford, pilot in command on the first flight of the Super One-Eleven.

There is news that Roumania will buy six BAC-111 airliners from the British Aircraft Corporation—a deal which, if completed, will be worth some £6 million and will be the first sale of British airliners to an eastern European country for many years. Discussions between Mr Verdet, the First Deputy Prime Minister of Roumania, and the Ministry of Technology and Board of Trade took place during the former's visit to this country during January.

More on the DH9

OUR recent conversion article on the DH9 has aroused considerable correspondence. Included in this was a very rare photograph from Handley Page Ltd showing their development of the aircraft for experiments using Handley Page slots. The aircraft used for this work was designated April, 1968



Above: Having a family resemblance to the Scout this latest mock-up of the Westland WG.13 helicopter is currently under development for the British Army. Other versions will eventually equip the Royal Navy and French naval and army air forces. It will be built as a combined Anglo-French project similar to the SA.330 and SA.340 which are French designed. **Below, left:** Stretched bus-stop jet. The Super One-Eleven for BEA which made its maiden flight from Hurn on February 7, ten weeks ahead of schedule.

HP17. The Handley Page system which considerably assisted the landing and take-off characteristics of the DH9 was fitted on aircraft such as the Wallace and Wapiti when these aircraft came into service in the late 'twenties. As already recorded, the latter used DH9A wings because there were so many of these built during the first world war and it was considered expedient to use up the stocks on a later type of aircraft. The photograph shows aircraft H9140 which first flew with Handley Page slots on April 22, 1920.

The Boyd Trophy

THE Boyd Trophy for 1967 has been awarded to 801 Naval Air Squadron. Flying from the Royal Naval Air Station, Lissie, and on board HMS Victorious during her last commission, the squadron exhibited a very high standard of professional skill and devotion to duty in flying and maintenance during the development and introduction to service of the most powerful strike aircraft ever possessed by the Royal Navy, the Buccaneer S2.

The Boyd Trophy, a silver model of a Swordfish aircraft, was presented to the Naval Air Command by Fairey Aviation Co Ltd in commemoration of the work for Naval Aviation of Vice Admiral Sir Denis Boyd, KCB, CBE, DSC, of Taranto fame. It is presented annually in February to the Naval pilot(s) or aircrew(s) who in the opinion of the Flag Officer Naval Air Command, have performed the finest feat of aviation during the previous year.



Winners of the C. P. Robertson Memorial Trophy for 1967 were Michael J. F. Bowyer (left), AIRFIX magazine's air historian, and Martin Sharp (right, above) for their definitive book Mosquito which was published last summer by Fabers. The presentation was made at the RAF Club, London, last November by Air Chief Marshal Sir John Grandy, Chief of the Air Staff, seen above with Mr Bowyer, Mr Sharp, the Trophy, and the miniature versions which they retain. The C. P. Robertson Memorial Trophy is awarded annually by the Air Public Relations Association—of which Sir John is Joint President—for the best interpretation of the RAF to the public (MoD photo).

THE CHURCHILL TANK

by
Peter
Chamberlain



PART 10

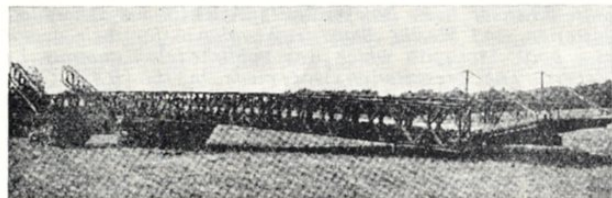
BRIDGING VARIANTS

ALL the subsequent bridging equipments evolved for or on the Churchill chassis were refinements or developments of the original World War 2 ideas. These are described here.

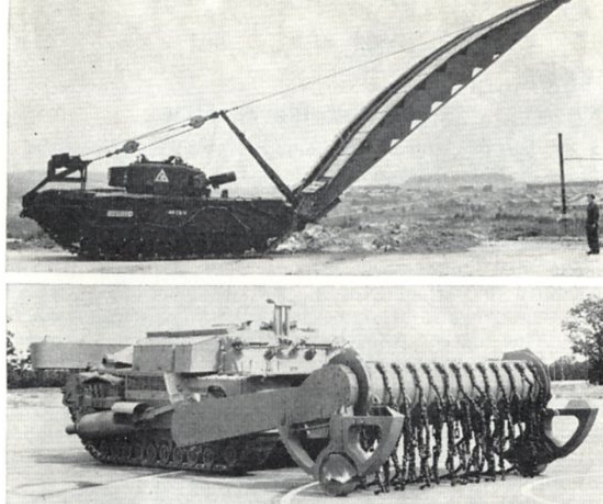
Churchill Mobile Brown Bridge: Developed by Captain B. S. Brown, Royal Canadian Engineers, of the 8th Army in Italy, this bridge was based on an early improvisation that had been used for the assault crossing of the River Rapido in May, 1944. The bridge consisted of 140 ft of Bailey Bridge transported by two Churchill tanks, one of which had its turret removed. This, the carrier tank, was positioned slightly in front of the point of balance of the bridge taking the bulk of the load, this position being maintained while in transit. Fitted to the top deck of the carrier tank were a series of launching rollers upon which lay the bridge. The pusher tank fitted with attachments for holding and releasing the bridge was positioned below the rear transom, where a skeleton 30 ft tail was attached. This false tail was designed to act as a counter weight.

To launch the bridge, the vehicles carrying the bridge advanced towards the 80 ft gap to be spanned. The carrier tank halted when the edge of the gap was reached, and the pusher tank continued to advance, and in doing so pushed the bridge over the rollers that were fitted on the carrier tank. As the pusher tank closed up to the carrier tank, the gap was spanned and the pusher tank and the skeleton tail was then disengaged from the bridge and reversed away, being in turn followed by the carrier tank, the bridge sliding down the carrier rollers as it moved back.

Churchill Mobile Dalton Bridge: This device was developed by Major T. R. Dalton, RE, as an improvement on the Brown Bridge but was not used operationally. The 140 ft of Bailey Bridge was carried on two tanks. The carrier tank, a Churchill Ark, was fitted with four transoms clamped laterally across the top deck, upon which were mounted



Above, left: Churchill Mobile Brown Bridge with carrier vehicle nearest. Right: Dalton Bridge with pusher vehicle nearest.



Top: Churchill AVRE with No 3 Tank Bridge ready for laying. This is the early pattern AVRE in post-war service. Bridge was mainly used with the AVRE Mk VII. Above: Churchill Flail which was sometimes known as the Toad (Imperial War Museum photos).

rocking rollers and guide rollers. The Ark was positioned a little forward of mid-point of the bridge to take about two-thirds of the total load, this portion of the bridge resting on the rollers. The pusher tank, a Churchill AVRE, was fitted with two special frames upon which were mounted winches. These were connected by tackle to the last trunnion of the bridge. The pusher frames were bolted to existing fittings at each side of the tank, and were arranged to form a tray, the horizontal members of which supported the bridge. Also attached to the rear of the bridge was a skeleton tail to act as a counter weight.

To launch the bridge, the two vehicles carrying the bridge advanced towards the site, and the carrying tank halted at the edge of the gap, while the pusher tank continued to move forward. In doing so, it pushed the bridge over the stationary carrier rollers until the nose of the bridge had reached the far side. The nose of the bridge was then lowered to the ground by means of the winches on the pusher tank, which then disengaged by blowing with a small charge the links connecting the winch cables to the bridge. This vehicle then withdrew, followed by the carrier tank which backed out from under the bridge, lowering it to the ground as it passed from underneath.

Churchill AVRE Mk VII (30 ft Tank Bridge No 3): This device was a post-war version of the war-time AVRE SBG and consisted of the double tracked single-span No 3 Bridge, as carried on the Churchill Bridge Layer. In the launching position the front end of the bridge was attached to a frame on the front of the AVRE while the far end was supported by a wire rope passing over a derrick pole to a winch on the rear of the vehicle. The launching controls were operated from inside the vehicle.

When travelling, the bridge was towed behind the AVRE on a two-wheeled trolley, being transferred to the launching position when the site was reached. Though intended for the



post-war AVRE Mk VII, this bridge was also used in conjunction with the original Churchill AVREs which remained in post-war service. This arrangement was not altogether satisfactory, the weight of the No 3 Bridge being too much for the suspension for sustained cross-country movement—hence the need for towing.

Churchill Twin Ark (FV 3901) (Linked Dog): Developed in 1954 to carry the heavy Conqueror tank over ditches and gaps, this device consisted of two Arks which could be linked together side-by-side, the two units forming a complete bridge. The Twin Arks were interchangeable and could be used on the left or right of the assault bridge, each unit providing one trackway of the bridge. As the Arks approached the gap to be bridged, they linked themselves together by coupling gear. The trackway of the Twin Ark was 7 ft wide and consisted of a central fixed portion supported by four box sections welded externally to the hull. A folding ramp was attached by hinge at each end of the centre portion, and was folded on its deck when travelling.

The ramps were opened by means of a system of steel wire ropes and pulleys coupled to a launching winch which was driven from the main engine. When opened and launched



Churchill Twin Ark, rear view showing folding ramps. the ramps dropped freely to the ground. The Twin Ark was built on old Churchill III and IV chassis, and it must be stressed that this was an entirely different design from the original Churchill Ark. The term 'twin' referred to the folding ramps which were in two sections, and the fact that two vehicles could be coupled together. The Twin Ark could also be used singly to form a bridge for 'B' vehicles or light tracked vehicles. This equipment remained in service until 1965 when withdrawal of the Conqueror and the introduction of the Centurion Ark rendered it obsolete.

Mine Clearing Tank

A PART from its use for mine clearing with Snake and CIRD equipment, the Churchill was also developed as a flail tank.

Churchill Flail (FV 3902): This vehicle was a modified Churchill Mk VII fitted with a flailing device designed to clear lanes through enemy minefields by digging out or exploding the mines, and was a post-war design to improve on the wartime flails (Sherman Crab, etc). The flail device consisted of a rotor drum fitted with 60 chains forming the flails, carried in front of the vehicle on arms pivoted on the hull sides and driven by an engine housed inside the hull in what had been the fighting compartment. A castor roller was provided on each arm and these served to keep the rotor at a constant height above the ground during flailing. When travelling, the whole flailing assembly could be hinged back on to the roof of the vehicle. It was lowered into the flailing

Continued on page 304

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Top: In addition to the types mentioned, this Snipe remains in flying condition in Canada. **Above:** Preserved Anson I in flying order is one of several famous RAF types (including an Oxford) operated by the Skyfame Museum at Staverton, Glos (Photo by Ron Cranham).

WHERE ARE THEY NOW?

Leslie Hunt surveys the preserved RAF aircraft of 1918–68 and their locations

THE search for aircraft for the Battle of Britain film and the incredible production of replicas for *Those Magnificent Men* and *The Blue Max* remind us of just how few of the famous RAF machines which actually flew on operations or as trainers in the two world wars, have been preserved for posterity. Nowhere in the world is there a Whitley, Hampden, Halifax, Stirling, to mention just four British aircraft which made history; nor do we in Britain have an RAF Blenheim, Fairey Battle, Master, or Botha. The RAF Museum's Beaufighter is a target-towing version (though rightly painted as a night-fighter, in 600 Sqn's colours, to honour the pioneers of airborne radar) and many of the exhibits we shall one day admire have been restored to represent squadron machines, from the remains of non-operational aircraft.

Let us then have a look at the authentic 'operational' planes of the Royal Air Forces which, happily for us and our descendants, can be inspected in the museums and collections all over the world. Proceeding alphabetically we begin at RAF Abingdon, where the Shuttleworth Trust's Spitfire Mk I AR213 (once G-AIST) helped produce many fighter pilots at Nos 57 and 53 OTUs. At Acklington another Spitfire, this time a late version Mk XVI TB252, first flew with No 340 (Ile de France) Sqn, Free French Air Force, the first French squadron in UK in World War 2.

Bicester is probably well known as the home of No 71 MU, the unit which maintains the Air Historical Branch machines for displays, but it is perhaps not so well known that the Spitfire XVI on their parade ground, serial TE356 (6700M) was operated by the RAF's highest-numbered squadron—No 695—which in 1949 became No 34 Sqn. In the exhibition hangar you'll normally find the only Hurricane in RAF hands which has 'Ops' to its credit, Mk I P2617 of No 607 (County of Durham) Sqn, RAuxAF. Unfortunately, squadron records were lost in France in May, 1940, and no accurate statistics are available for this machine which became a training aircraft after the evacuation when the squadron obtained the Mk II Hurricane. Two Spitfires

are in the hangar of which Mk I K9942 was delivered to No 72 Sqn at Church Fenton, in 1939, to become F/O J. B. Nicolson's aircraft, before he moved over to No 249 Sqn as one of Sqn Ldr John Grandy's flight commanders, destined to gain Fighter Command's only VC, later losing his life. Air Chief Marshal Sir John Grandy is now Chief of the Air Staff and must be glad that Nicolson's machine is one of the few which were earmarked for preservation. The other Spitfire Mk I, X4590, flew about 50 sorties with 609 (West Riding) Sqn, RAuxAF, and later with No 66 Sqn, having several successful combats in 1940–41.

Biggin Hill, forever linked with Churchill's 'Few' by the lovely memorial chapel, has both a Spitfire and a Hurricane at the entrance, the sturdy Hawker aircraft a Mk IIC LF738 originally going to No 22 OTU in August, 1944. The 'museum' at Biggin has the world's only Wellington, a Mk X MF628, built by Vickers at their Blackpool factory in May, 1944; and later flying with No 1 Air Navigation School, Hullavington. Sold back to Vickers in 1955, it is loaned by the Royal Aeronautical Society, reminding us of the 11,461 'Wimpeys' which did such magnificent work. On now to

Birmingham's Technical Museum to inspect the only preserved Mk IV Hurricane, KX829 which actually served with Nos 137, 286, and 631 Sqn, though it is now incorrectly painted as a 6 Sqn machine. Alongside is Spitfire IX M1427—once with Rolls-Royce and RAF Millfield before it went to No 4 Sqn—one of the last manufactured at Castle Bromwich.

The Spitfire Mk V, EP120 at No 13 (Scottish Sector) Boulmer, Northumberland, is more than a 'Gate Guardian' for Senior Technician J. Ayling who restored it to produce a tribute to his two brothers (one killed in 66 Sqn, 1940, the other in USA during training) and to all who flew the type. Originally with 501 (County of Gloucester) then as Sqn Ldr Jeff Northcote's personal mount with 402 (Canadian) Sqn, the Spitfire was rebuilt from Bircham Newton's display aircraft by using parts from a Mk XVI of post-war 604 (County of Middlesex) Sqn which an ATC Sqn in Newcastle had used. Far too many wartime machines were allowed to go to scrap but one, fortunately, returned to the RAF when Messrs John Dale generously presented to RAF Colerne Spitfire Mk IIA P7350 which saw Battle of Britain service with No 266 (Rhodesia) Sqn, and later with 603 (City of Edinburgh) Sqn, 66, and 616 (South Yorkshire) Sqn. Also at Colerne is the Auster, which served first with No 663 (Polish) AOP Sqn, and later went to the Antarctic in



Hurricane I restored to its original 1940 Battle of Britain markings, L1592, can now be seen in the aviation gallery of the Science Museum, London, with a Spitfire and other famous civil and RAF types.

AIRFIX magazine

1955, serial WE600, depicted in the Airfix Auster kit.

For many years RAF Coltishall has been the home of the RAF's last flyable Hurricane IIC, LF363, and Spitfires XIX, PM631 and PS853. On Battle of Britain Day, 1965, doyen of test pilots, Jeffrey Quill, OBE, AFC, handed over to Air Cdre Alan Deere the preserved BAC Spitfire V, AB910 (G-AISU) which is also now at Coltishall.

Although never in squadron service, Meteor prototype DG202/G must be mentioned for it was the first of the initial dozen ordered to specification F9/40 and originally called Thunderbolt until the USAAF came to Europe with their machine of the same name. Now at Cosford this historic Meteor first flew on July 10, 1942, and was rotting at RAF Yatesbury gate when a passing motorist of the Dowty Group recognised it. Speedy steps were taken to restore it and to obtain the Royal Aero Society's plaque for a deservedly worthwhile exhibit.

RAF Henlow has been the repository for many machines which will one day form the Royal Air Force Museum (at Hendon) and here is the Lysander Mk II, R9125 of No 255 Sqn, Army Co-operation Command, with the Gladiator K8042 which, in 1937, was one of the first with Browning guns at Boscombe Down and Ternhill, later at Marshall's Flying School and the Biggin Hill Museum. The Tempest V, SN219, although now in 33 Sqn markings coded 5R-F, is thought to have been at Boscombe Down in 1945, and was rescued from the Weapons Proving Establishment, Shoeburyness, to provide a centre-piece for the squadron's Standard presentation.

At nearby Bassingbourn, incidentally, is a post-war machine of note—the Canberra PR3, WE139, which won the England-New Zealand Race in October, 1953. Across now to the Central Flying School, Little Rissington, to admire the RAF's only remaining Harvard, a IIIB, FS890, built 1942 and flown until 1957. Here, too, is Spitfire XXI, IA226, operated by No 91 Sqn in 1945, later by 122 Sqn and No 3 Civilian Anti-Aircraft Co-operation Unit at Exeter.

We should go to Salisbury Hall, London Colney, on the A6, to view the famous prototype of World War 2's 'Wooden Wonder'—W4050—now raising substantial sums on show for the RAF Benevolent Fund. Back now to RAF, Locking, Somerset, to inspect Spitfire IX MK356, late of No 443 (Canadian) Sqn, and formerly 'Gate Guardian' at Hawkinge until that great fighter airfield closed.

London naturally attracts aviation enthusiasts from all parts of the world and in the Imperial War Museum, Lambeth Rd, you can see Sopwith Camel N6812 which, piloted by Canadian Lt (now Gp Captain) D. S. Culley, brought down Zeppelin L.53 on August 11, 1918, as drawn and described in the December issue. Nearby is an RE8 F3556 (with no 'Ops') and in the new gallery a BE2C serial 2699, whose original logbook has, alas, been lost; hanging alongside is Bristol Fighter F2B, E2581, of No 39 Sqn and No 1 Communications Sqn but—for many—pride of place is taken by Spitfire I, R6915, perhaps the most 'operational' RAF aircraft preserved anywhere, with claims of at least 10 enemy aircraft destroyed or damaged in 609's Battle of Britain sorties and several offensives with 602 (City of Glasgow) Sqn in 1941, before flying at Nos 61 and 57 OTUs. Across to the Science Museum, Kensington, to admire many magnificent British machines, both civil and military but, for our purpose, to take a close look at the Supermarine S6b, S1595, which, in Flt Lt John Boothman's hands, gained for us the Schneider Trophy; S1596 in which Flt Lt G. H. Stainforth set the world speed record at 407.5 mph is now at Southampton. Before leaving the Science Museum, pay tribute to Sir Frank Whittle's E28/39—forerunner of all our jets—and April, 1968



Top: Spitfire IX TE565 was restored by Czech enthusiasts. Machine is ex-Czech Spitfire Wing. **Above:** Only remaining Tempest V, in the markings of 33 Sqn, is now at Henlow for the RAF Museum.

to this country's only preserved Battle of Britain Hurricane, the Mk I L1592, originally 56 Sqn, but flown by No 615 (County of Surrey) Sqn until damaged in August, 1940.

Manston, Kent, is mainly a civil airport, and many who travel pause at the Spitfire Mk XVI TB752 late of Nos 66, and 403 (Canadian) Sqn. Very much RAF is Marham, Norfolk, where stands Valiant XD818, the 49 Sqn machine which dropped the first British H-bomb in 1957. At the entrance to RAF Scampton, Lincs, is the greatest of all the many Lancaster bombers—Mk I, R5868, veteran of 137 'Ops' with Nos 83, and 467 (RAAF) Sqn; and at Wattisham and West Raynham are two Spitfires, a Mk XVI, SM411, of 421 (Canadian) Sqn at the former and a genuine ex-No 1(F) Sqn Spitfire XXI, LA255, outside the squadron's flight-line museum at West Raynham. The two machines on show outside Fighter Command Headquarters do not strictly qualify for mention, though the Hurricane IIC, LF751, was with No 1681 Bomb Disposal Flight in 1944 and later with 24 OTU; the Spitfire XVI, SL574, was, in fact, the last one to fly over London in a Battle of Britain Day ceremony, force-landing on the Oxo Sports Ground, Bromley, on Sept 20, 1959; after which Air Ministry decided to restrict the flypast to post-war jets.

The Shuttleworth Trust at Old Warden, Beds, and Skyfame Museum at Staverton, Glos, exhibit (and fly) former RAF wartime aircraft and at Pembroke Dock, South Wales, we can view Sunderland V, ML824, once with Nos 201, and 330 (Norwegian) Sqn, then with No 59 Sqn, French Naval Air Service, who generously presented it to the Short Sunderland Trust. At RAF, St Athan, where so many airmen have been trained, the world's only remaining Boulton Paul Defiant NFI, N1671, flown by No 307 (Polish) and 153 Sqn, is kept. Miles north, at the RAF, Leuchars gate, stands Spitfire XIX, PS915, with No 2 Sqn, Woodvale Met Flight, and West Mallory gate, as part of its history.

Australian readers able to visit Canberra's War Memorial, will see 'Bluey' Truscott's Spitfire II, P7973, of 222, 313 (Czech) and 452 (RAAF) Sqn, the Lancaster I, W4783 (RAAF A66-2), formerly of 460 (RAAF) Sqn, survivor of 90 'Ops' before being flown to Australia. The Commonwealth's link with the Korean War is here in the form of Meteor F8 A77-368 of No 77 Sqn, and, across the world, in Rockcliffe, Canada, is the unique link with the Royal Flying Corps, in the presence of the BE2C 4112, in which Lt Fred Sowrey shot down Zeppelin L.32 over Essex. In Ottawa's War Museum are the remains of Sopwith Snipe E8102, in which Major W. G. Barker gained his VC—just two items

Continued on next page

DH4 colour schemes

Drawn and described by Paul Leaman

IT is inevitable when talking of the Aircraft Manufacturing Company's DH4 that a comparison is made with the same firm's more recent DH98 Mosquito. They did in fact share many features. Both made extensive use of plywood, both were, in their day, remarkably 'smooth' machines and both had speeds more than comparable with contemporary fighters. Unlike the Mosquito, the DH4 was, however, designed to be able to fight its way out of trouble if need be. The earlier versions with one fixed and one free machine gun was quite capable of this, but much more so were the later versions with four machine guns.

The DH4 served with the RNAS, the RFC, and later with the RAF. It was designed for use as a strategic bomber, probably the first aircraft to be so designed, but it also saw service as an escort fighter, an anti-zeppelin fighter, a photographic reconnaissance aircraft and, on occasion, as a ground attack machine. In post-war years the type was used to pioneer many civilian air routes and postal services. The proof of its sound design lay in the number of uses to which it was put after the war and the successful development of the basic airframe through the DH9 and 9A (dealt with as conversions in the last two issues) to the Westland Walrus and other variants which continued in regular service with several air forces long after 1918.

The recently issued Airfix kit of the Eagle VIII-powered version of the DH4 is near perfection and has been chosen as the subject of these three drawings. They are simple

'paint conversions', and the drawings and these notes should suffice to enable you to add variety to the basic kit.

(1) A/7876, built by Airco and an aircraft of 'C' Flight, 202 Sqn RAF. Note should be taken of the non-standard spinner fitted to the propeller and the brass bound propeller tips. A spinner from your 'spares' box or filed up from scrap plastic is the only addition to the basic kit.

(2) B1 of 5 Wing RNAS. This machine, it is thought, had its rear fuselage painted red, this and its number B1 leads to the deduction that it was the flight commander's aircraft. The elevator surfaces were painted in the blue, white and red equal width stripes often found on naval aircraft of the period, also shown on the Camel drawing in the December issue. Note should be taken of the alloy panels which had a high gloss polish and which are best simulated by the use of gloss Metalskin. The small access panels on the nose of this and some other machines were not round as in the kit. The small kit panel must thus be removed and replaced by the irregular shape drawn.

(3) Aircraft 'K' of 'B' Flight, 55 Sqn RFC carries the plain white sloped bars which were that squadron's marking until squadron markings were removed from bombers later in 1918. The officially designated marking for this squadron was at one time a white triangle but it is not known whether this was ever used.

Before you assemble any DH4 kit, however, attention must be drawn to two simple modifications necessary to make the Eagle VIII version quite accurate. The first of these involves the gravity feed petrol tank. This should, in fact, be sited under the port wing in an identical position to its present location beneath the starboard wing as suggested in the kit. The holes on the starboard side are easily filled with body putty. The second and almost equally simple modification involves the bomb carriers beneath the lower wing. These must be completely removed and replaced by carriers of identical length, but running chordwise and not spanwise as in the kit. These should be on the outer of the two wing ribs concerned. Some DH4s were fitted with their bomb carriers beneath the fuselage to the rear of the undercarriage legs.

(Drawings on opposite page.)

Where are they now?—continued

of Canada's fantastic aircraft collections which merit a visit.

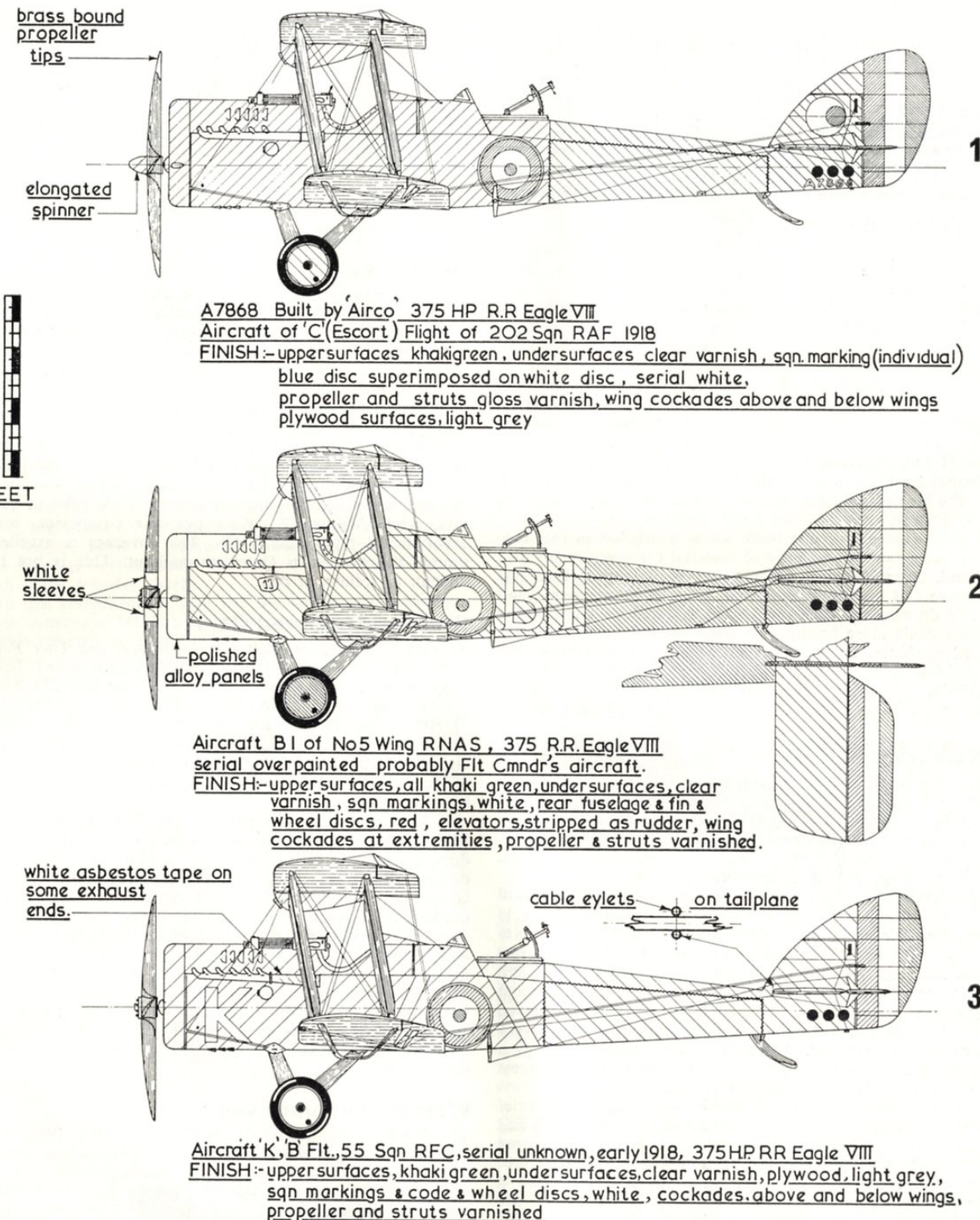
South Africa's Johannesburg War Museum contains many interesting aircraft, including Mosquito PR1X, LR480, of 60 Sqn, SAAF, and nearer home, enthusiasts in Prague are busily restoring a Spitfire IX, TE565, which was part of the Czech Spitfire Wing of Nos 310, 312, and 313 Sqn, with the RAF. At Overloon's Open Air Museum, Holland, stands a Mitchell (coded 2-6) thought to be from No 320 (Dutch) Sqn, of No 2 Group, 2nd TAF in 1943-5, and at Eindhoven, acting as a memorial to all fighter pilots of the Royal Air Forces, is Spitfire IX, MJ289, flown by No 485 (New Zealand) Sqn until the Arnhem fighting of September, 1944. At RAF, Gutersloh, Germany, is Spitfire IX, MK732, thought to have come from No 34 Wing, Eindhoven, and, stored near Athens, Greece, is another Spitfire IX, MJ755, which was sent to Middle East early in 1944, but, alas, has no traceable history in RAF hands, though known to have operated with the Royal Hellenic Air Force post-war.

This coverage of Royal Air Force machines which can be seen today is necessarily incomplete because of space limitations here, but it is hoped that it will encourage many readers to seek out 'old friends' in this 50th Anniversary year of the RAF.

Churchill Tank—from page 301

position with the aid of two other tanks. A fixed superstructure was built on top of the hull to replace the turret and was divided by a bulkhead to provide a driving compartment at the front and the flail engine compartment at the rear. The front of the structure was of thick armour plate and extended down to the lower front hull plate to protect the crew from debris thrown up by the flail and exploding mines. Lighter armour was used for the sides and the rear, and roof plate. Periscopes were fitted for the driver of the vehicle, and a vision cupola for the commander who sat in what was previously the bow machine gunner's position. There were access doors to both compartments fitted into the roof plates. On the rear of the vehicle was mounted a Whyman Lane Marker assembly. This device fired markers into the ground every 40 ft, and could be set to fire on both sides or either side of the tank and was operated from the crew compartment. It was used to indicate a swept path for following vehicles. Weight 56 tons, crew two.

Churchill Flails saw little service, most being kept in reserve for emergencies. They were discarded in 1965. Experiments were also carried out on a gutted Churchill Mk VII with flail equipment using radio control, but this did not proceed beyond the trials stage.



Drawings prepared from photographs loaned by G.S. LESLIE, L.A. ROGERS, & A.H. CURTIS, interpreted and drawn by p.s. leaman 1968.

NEW BOOKS

REVIEWED FOR MODELLERS

Jubilee Edition

AIRCRAFT OF THE ROYAL AIR FORCE, by Owen Thetford.
Published by Putnam & Co, 9 Bow Street, London, WC2.
Price 84s.

OWEN THETFORD'S book is generally considered to be the 'standard' work on the subject, being truly encyclopaedic in scope and coverage. Now Putnam has brought out a 'jubilee edition' to celebrate the fiftieth anniversary of the founding of the RAF. This gives the author the opportunity to bring the book right up to date and include all the latest types and variants in service. In one or two instances, in fact, the book is ahead of the times since it features the F-111 and several other types which were axed in the recent financial crisis—such are the hazards of producing a book in the face of political chicanery, as far as 'defence' subjects go, anyway.

Four guineas for one book seems a lot, but in this case you get a fantastic amount of material for every penny you spend. Over 300 types are covered, each with at least one picture and usually several, and there is a three-view small scale drawing for each main type. A further section of the book deals more briefly with experimental and 'impressed' civil machines. There are several data tables in addition. We would venture to suggest that if you are an impecunious aviation enthusiast who can only afford the occasional expensive book, this one is worth placing high on your list.

New from the States

THE JEW WITH THE BLUE MAX, price \$1.95 (plus 7% postage).
JUNKERS JU 88, by H. J. Nowarra. Price as above.
US NAVY MARKINGS, WORLD WAR 2 PACIFIC THEATER, by Thomas E. Doll. Price \$2.95 (plus 7% postage).
All published by JWC Publications Corp, 7506 Clybourn, Sun Valley, Calif, 91352, USA.

THESE three books from a new American publisher will all interest the aviation enthusiast, covering both world wars in their scope. First of the titles rescues from obscurity the World War I German Jewish air ace Frankl, whose name was removed from the records under the Hitler regime and who is thus almost unknown compared with Richtofen and Goering. Main part of the book is pictorial, illustrated largely from Frankl's personal albums and thus full of very rare aircraft pictures. There is a short biography and a colour picture on the rear cover. This will certainly interest those who study first world war aviation.

Second book is a sort of 'Profile' with only a very brief text but packed with pictures dealing with the Ju 88 A-4 and A-5 variants. There isn't much that has not been covered more fully elsewhere, but there is an excellent colour centre-spread drawing and the covers are also in colour, with a Ju 88 painting on the front and *geschwader* emblems on the back of units equipped with the Ju 88.

Lastly, and most important of all in our opinion, is a very fine pictorial work on the many and varied markings used on US carrier-based aircraft in the Pacific. Anyone who has

tried to research this field for model finishes will know how difficult it is to track down codes, rudder markings, bars, and stripes which indicated the parent carrier of US Navy planes, and this book does it all for you. Not only is it full of pictures, it also includes colour scheme and marking changes year by year, cockpit and other interior colour schemes, official marking directives, eight colour scheme side view drawings (in tone) for Dauntlesses, Hellcats, and Corsairs, and colour pictures on the front and rear covers. An excellent addition to aviation literature, this, and well worth having if you model Navy planes. All three books are paperbacks.

SP Guns

MODERNE ARTILLERIE, by Fred Vos. Published by Uitgeverij De Alk nv, Holland, and available in Britain from Graham K. Scott, 2 The Broadway, Friern Barnet Road, London, N11. Price 7s each (two volumes), postage extra.

SOME readers may already be familiar with the series of little pocket books by Fred Vos covering armoured fighting vehicles and published in Holland. These are nicely illustrated, well printed volumes with a great many pictures and diagrams. These latest two from the same author cover US Army self-propelled guns and missiles from World War 2 to the present time, plus some other types. Volume 1 includes heavy wheeled artillery and recoilless rifles in addition, while Volume 2 covers post-war equipment, some experimental types, and LVTs. The coverage is excellent, though the text is in Dutch throughout. This is not too difficult to follow, in fact.

German Armoured Cars

STRASSEN PANZER, by Walter J. Spielberger and Uwe Feist. Published by Aero Publishers Inc, Fallbrook, Calif, USA, and distributed overseas by W. E. Hersant Ltd, 228 Archway Road, London, N6. Price 24s 6d, postage included.

THIS is the latest in the 'Armor Series' which has been devoted so far to German vehicles. In our opinion it is also the most interesting as it covers a subject (armoured cars of the German army) not previously dealt with at any length by other authors.

It starts with the Daimlers of pre-1914 vintage, covers World War 1 designs, the six-wheelers of the 'thirties, the dummy tanks on car chassis, and the four- and eight-wheel designs of 1939-45 and their many variants. There are four colour drawings to show typical camouflage schemes and markings. A useful introduction covers armoured car development in Germany and explains the different roles and designations. In addition to this there are side-view line drawings of the basic vehicles and brief specifications. Apart from about four pages of introduction, the main part of the book is pictorial, the quality of reproduction being excellent and many of the shots quite rare. It will thus be a particularly useful publication for modellers who seek plenty of detail views.

Western Locomotives

THE GWR STARS, CASTLES, AND KINGS: PART 1, 1906-1930, by O. S. Nock. Published by David & Charles (Publishers) Ltd, South Devon House, Railway Station, Newton Abbot, Devon. Distributed by Ward Lock & Co Ltd. Price 42s.

G. J. CHURCHWARD laid the solid foundation upon which 20th-century GWR steam locomotives, the 'Stars', 'Castles' and 'Kings', in particular, were developed. The out-

Continued on page 324
AIRFIX magazine

'Faithful Annie'

ALAN W. HALL BUILDS A MK XII
FROM AN AIRFIX ANSON I

THE Anson is one of the most immortal of all RAF aircraft, so it makes a most appropriate conversion subject for this fiftieth anniversary month of the RAF. I chose to convert the Airfix Anson Mk I into the Mk XII, as this gives a chance to prove that with average patience the modeller can hollow out a fuselage interior using readily available tools.

The Anson provides the perfect subject as it is relatively simple in outline and when windows are cut into the fuselage sides the interior can readily be seen. I do not advocate laboriously hollowing out fuselages where the result does not justify the end. Some modellers have been known to work for hours on the interior detail of an aircraft only to cover the whole lot up again in the finishing. You could, if you wished, however, make the Anson XII with a 'solid' new fuselage section and depict the side and top windows with black transfer sheet.

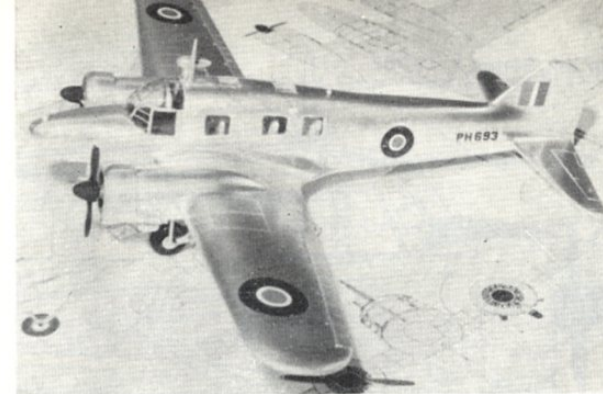
In this conversion, I have left the model at the Series 1 stage. Ansons of Mk XII vintage were built with the wooden, canvas covered wings of the Mk I variety in the earlier serial batches but were later turned out with variations leading up to and including the all-metal, increased taper wing common to Ansons of the C19 and T21 versions built after the war. Many of the Mk I, Series 1s, were retrospectively fitted with these wings, hence the variations shown in our drawings this month. If you want to alter the wings as well, that is entirely up to you. It would be a fairly difficult task, however.

Photographic reference on the Anson Mk XII is remarkably rare. Almost every book on this aircraft gives consideration to the later C19 and the trainers but leaves the story of the first true transport version unsung. Many Ansons of the Mk XII type were built during the war and acquired a green and brown camouflage scheme. Those not wanting an all-over silver paint job might like to know that illustrations of camouflaged Mk XIIs exist in Putnam's *Avro Aircraft* by A. J. Jackson and *Aircraft of the Fighting Powers*, Vol 5.

I was forced to buy one other kit in order to convert the Anson. This was a Frog Oxford which provided me with the correct engine cowlings. Without going into the matter very deeply it would be possible to make an Airspeed Envoy out of swapping the two sets of engines, so the purchase of the extra kit may not add so much to the bill for the Anson in the long run!



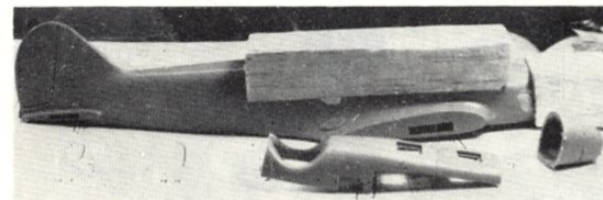
April, 1968



Above: Alan Hall's model finished as PH693, a Mk XII with fabric-covered wings as drawn on the next page. Foot of page: PH788, a late production Mk XII with metal-covered wings, also drawn on the next page, seen at Gaydon in 1960 (Photo by Richard L. Ward).

STAGE 1 Cement together the two fuselage halves, and include the cockpit floor but not the seats. Similarly the wings can be cemented including the undercarriage but not the engines. With a fine-toothed saw, cut vertically just to the rear of the turret hole to a depth corresponding to the line of the bottom of the fuselage windows. A small gap will be left in the otherwise straight line which results where part of the fuselage windows should have gone. This is filled on both sides of the fuselage with a small piece of plastic card. The 'bumps' on the wing fillets are removed from each side of the fuselage.

STAGE 2 Cut off the nose $\frac{1}{4}$ inch forward of the front of the cockpit sill. Both the fuselage and nose sections are now replaced with balsa wood plugs. The former extends over the whole of the fuselage and includes the cockpit area. This will later be cut away to make the male mould for the canopy. Cement the nose balsa block firmly in place but on the fuselage block only a few drops of glue are needed, sufficient to hold it in place. At the same time ensure that an exact fit is made between the wood and the plastic.

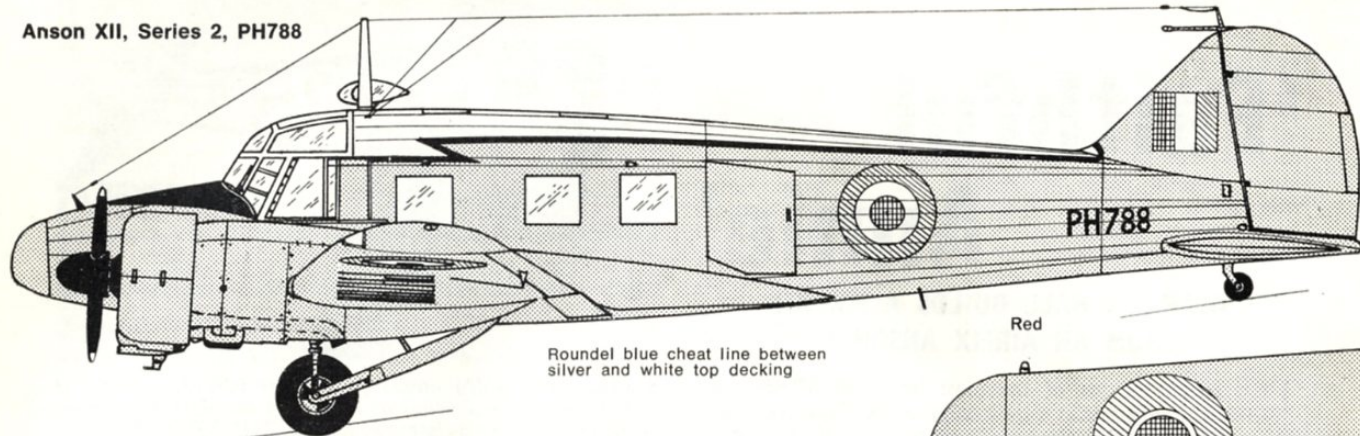


STAGE 3 When thoroughly dry, the job of carving the new fuselage and nose can start. In both cases complete the rough papering with coats of clear dope and talcum powder mixture to act as a filler. Take careful note of the plan while shaping as the cross-sections are inclined to be subtle. Ensure that there is no tiny gap between the balsa block and the plastic where the fuselage is concerned as once this section is finished it is cut off along the joint with the plastic and hollowed out. Before doing this the cockpit area is removed and set aside for the moulding process.

STAGE 4 I removed the balsa from the interior of the new fuselage section using lino cutting tools similar to those used in art and craft classes for making lino prints. They can be purchased easily at any local art shop and are much cheaper than going in for expensive gouges. The skill in making this model comes at this stage. It is here that all your patience will be required as the walls of the fuselage will have to be thinned down to roughly $\frac{1}{16}$ inch. This requires both care and patience. Sand-

Anson scale drawings on next two pages
Instructions continue on page 310

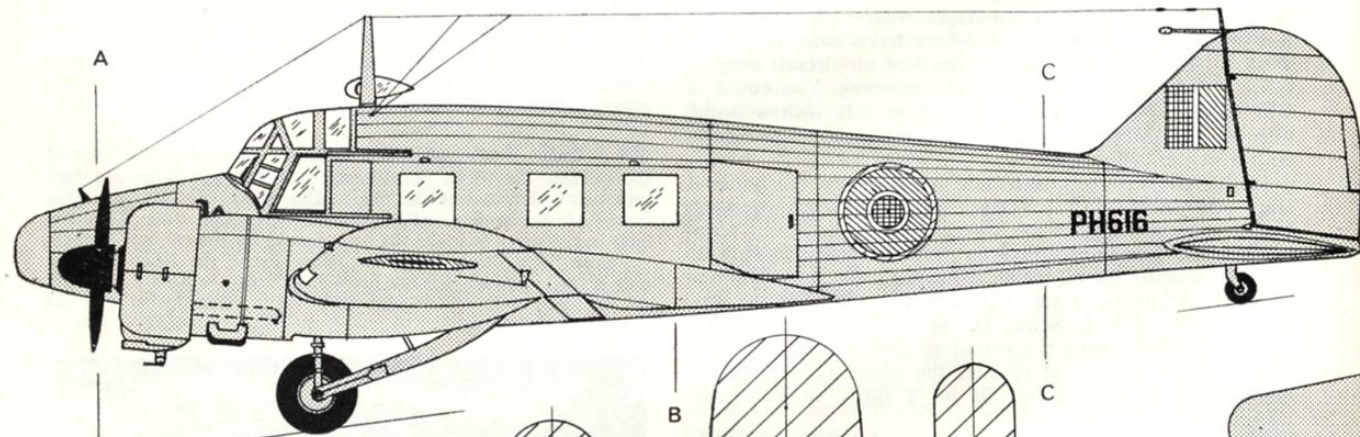
Anson XII, Series 2, PH788



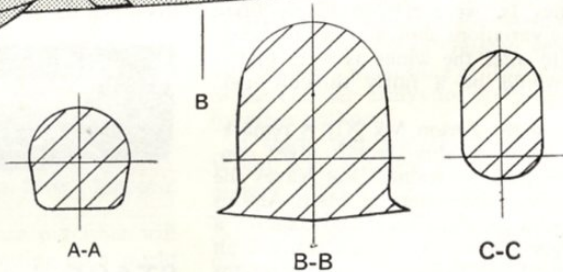
Roundel blue cheat line between silver and white top decking

Exhausts on inboard sides of nacelles
(on some Ansons they were on outboard sides)

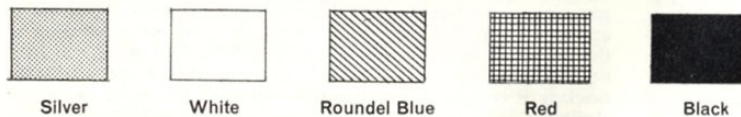
Early production Anson XII, PH616, 1945



Fuselage cross-sections

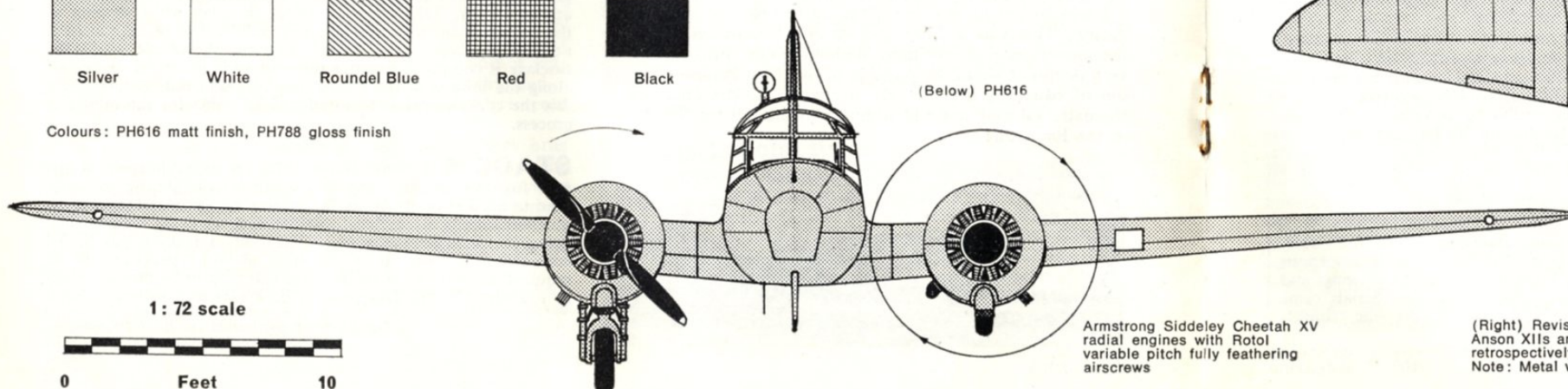


Cockpit canopies on earlier machines differ—compare with PH788 drawn above



Colours: PH616 matt finish, PH788 gloss finish

1:72 scale

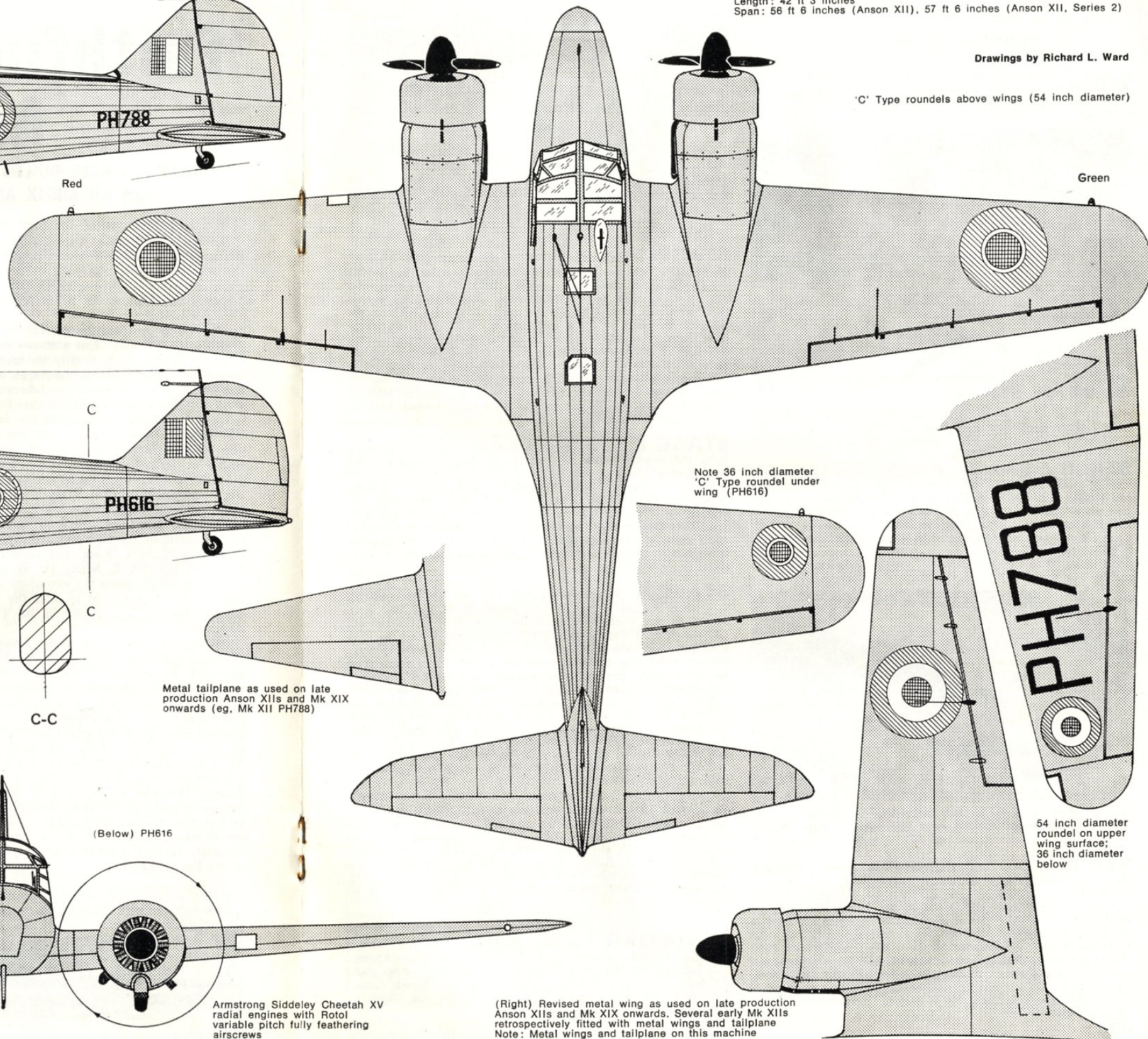


Armstrong Siddeley Cheetah XV radial engines with Rotol variable pitch fully feathering airscrews

Length: 42 ft 3 inches
Span: 56 ft 6 inches (Anson XII), 57 ft 6 inches (Anson XII, Series 2)

Drawings by Richard L. Ward

'C' Type roundels above wings (54 inch diameter)



Note 36 inch diameter 'C' Type roundel under wing (PH616)

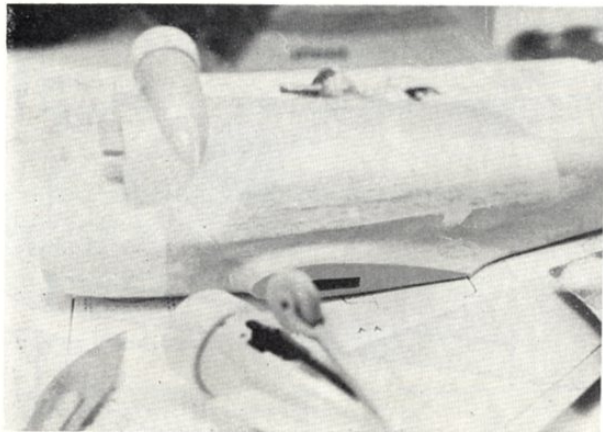
Metal tailplane as used on late production Anson XIIs and Mk XIX onwards (eg, Mk XII PH788)

54 inch diameter roundel on upper wing surface; 36 inch diameter below

(Right) Revised metal wing as used on late production Anson XIIs and Mk XIX onwards. Several early Mk XIIs retrospectively fitted with metal wings and tailplane
Note: Metal wings and tailplane on this machine

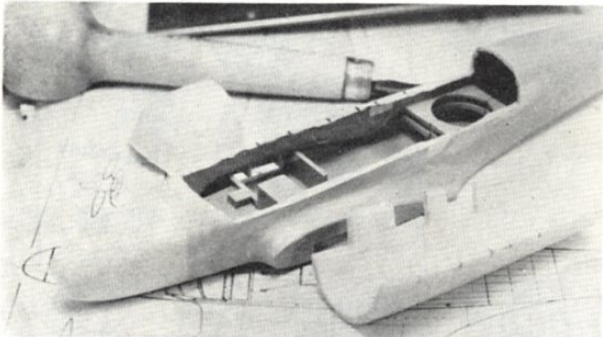
'Faithful Annie'—continued

paper, both rough and fine is the only answer in the final stages and great care will have to be taken not to damage the edges which will eventually be mated back to the plastic part of the fuselage.



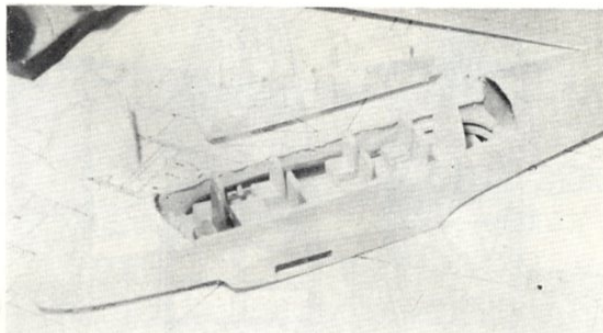
Above: Stage 3, referred to on page 307. Fuselage section is only lightly cemented while correct shape is carved and sanded. Note new cowlings on engines.

STAGE 5 Having satisfied yourself that the fuselage shell is thin enough, coat the whole of the interior with clear dope and talcum filler before cutting out the window areas. This will give some 'body' to the thin shell and will be more easily repairable if breaks do occur as they did in my case. One other difficulty I found was the warping effect given by the filler mixture. It pulled the fuselage sides completely out of shape to start with but I managed to cure the effect by very thin cuts lengthways on the interior walls. When painted these did not notice.



Above: The fuselage section hollowed out as outlined in Stage 5. Picture at top of next column illustrates Stages 6 and 7.

STAGE 6 Once the fuselage work has been completed and during the time the filler mixtures are drying out, work can start on detailing the cabin interior. Here I used old seats left over from other conversions and found in the 'spares' box. Six are needed apart from the two already in the kit which are used in the pilot's cockpit. A false floor should be laid first of all, made from plastic card and supported by a small piece of $\frac{1}{4}$ inch balsa from the fuselage shell. Leave in the main spar rib which appears at right angles to the centre line of the fuselage and half way up the cabin. Fill in the walls of the interior with thin plastic card to complete the job. The cabin is painted 'interior green'; seats mid-blue grey



STAGE 7 Cabin and roof windows are then inserted. Made from clear acetate sheet, as thick as can be supplied by the model shop, these are cut with the knife to fit the holes already made in the fuselage shell. Most difficult will be the roof windows which have to be accurate on all four sides, whereas the side windows can be fitted with accuracy on three sides where these actually touch the cut out areas. Shaping of the fourth side can be done when refitting the shell back in place on the main fuselage. I used liquid polystyrene cement for sticking the windows in place. It was nowhere as messy as the tube variety could have been, took longer to dry, and so gave better 'fiddling' time. Once completed and dry, the shell can be stuck back in place on the main fuselage.

STAGE 8 The canopy is now made. The part cut away from the original balsa part of the fuselage is sanded down equivalent to the thickness of the acetate sheet to be moulded. It is then covered with filler and polished. A small piece of balsa is mounted on the base to act as a handle when moulding. The female mould is cut from obechi sheet, the acetate is pinned to it, and the canopy made by heating over the gas or electric stove and forcing the male mould into the female. After painting the cockpit interior black and detailing, the canopy can be stuck in place.

STAGE 9 During waiting periods in the fuselage construction attention can be paid to the wings. These will have been assembled, less engines, at an earlier stage. Now is the time to add the Oxford engines, which before positioning have to have their foreparts rounded slightly more. This can be seen by comparison with the plan. Note, too, that they are set at a moderate up-turned angle. The propeller spinners were made from dowel rod shaped as in the plan. The blades from the original kit propellers were cut off and stuck into small slots made in the spinners. Small balsa blocks for the air intakes were cut to fit the underside of the cowlings, stuck in place and shaped by sandpaper to fit the plan shape when dry. The fit between the wings and the fuselage of this kit is quite good. Only slight filling and rubbing down to remove the bomb bay door outline will be needed.

STAGE 10 The basic model is now complete. Final details should now be added. You will need a rudder mass balance (made from an old rocket stem and head), a D/F loop (this should be clear plastic but is almost impossible to make as such), a VHF radio mast (made from a toothbrush bristle) and the tiny triangular shape at which the H/F aerial ends on the fuselage nose. Tailplanes, tailwheel, main radio mast and wings from the kit complete the job.

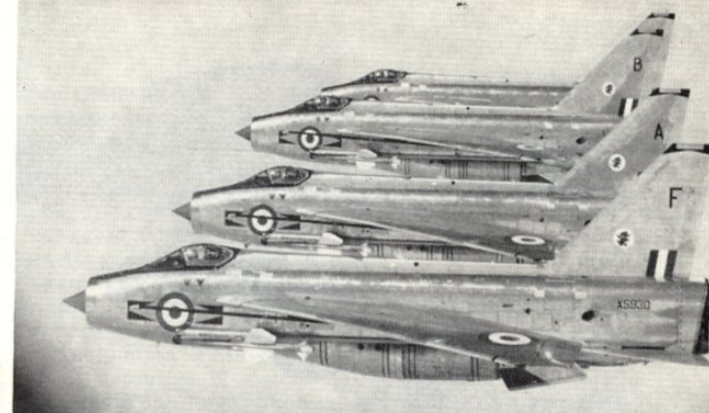
PAINTING The paint job is up to the individual. My own model was made as PH693—alternative versions including a Mk XII, Series 2, are included in the drawings and there's always a camouflaged one to consider. Serials came from the Yeoman $\frac{1}{4}$ inch series of black letters—the roundels were cut from the HisAirDec sheets.

PER ARDUA AD ASTRA

Michael J. F. Bowyer recalls
famous squadrons and aircraft of
the RAF's first 50 years

Drawings by A. M. Alderson

Right: Lightning F6 fighters of No 11 Sqn currently based at Leuchars. F: XS930 is nearest, while behind can be glimpsed A: XS904, B: XS918, H: XS932. Squadron marking is yellow and black (MoD photo).



ASKED to name the most important battles in British history, most people would probably mention Agincourt, Trafalgar, Waterloo, one of the gruesome engagements of the 1914-18 War, and almost certainly the Battle of Britain. Had that fight over England in 1940 been lost, all that we still cherish would have been destroyed. That 'narrow margin' which brought success became the cornerstone upon which Allied victory was built. It is well to remember that the Battle of Britain, although primarily fought by the Royal Air Force, was a lengthy engagement in partnership with those other great bastions of freedom, the British army and the Royal Navy. It was they who forged Britain's air forces, adapting each to its own requirements. Not until aeroplanes could serve in a strategic role did the notion gain ground for a third or 'independent' force.

Its formation on April 1, 1918, as the Royal Air Force, by the amalgamation of the RFC and the RNAS, has surely proved one of the most important decisions in world history. Independent of the other arms to a large extent once the 1914-18 war had ended, it was able, with its own Staff, to assess likely requirements for aircraft and political situations. Soon it found itself principal defender of the British Isles, was policing Britain's Empire, and in due time included a strategic bomber force with its roots in the Independent Force forged by Lord Trenchard in June, 1918.

In the 1920s such schemes were largely academic, for no true enemy existed. If attack came it could only be from France, thus the Royal Air Force established bases mainly in the south, guarding approaches to the capital and placing bomber bases within striking distance of likely targets across the Channel. The rise of Hitler's Germany changed the pattern.

Vacillation and wrong political decisions abounded then as now. Soon it became imperative that the Royal Air Force be re-armed and greatly expanded. The great age of the biplane was over, its fate sealed within over a dozen re-armament schemes for equipping the RAF with fast monoplanes. In 1932 plans formulated for a new bomber force took on new meaning. Virginias and Heyfords were to be replaced with seemingly revolutionary machines like the Wellington, Whitley, Hampden; Blenheims and Battles would take over from the Harts and Hinds. Fast heavily armed fighters would replace the colourful Gauntlets and Gladiators. A second generation of really heavily armed long-range bombers was called for in 1936. Thus were sown the seeds that blossomed into the Stirling, Manchester and Halifax, and led to those inspiring mutations the Lancaster and the versatile Mosquito. Soon were forged the weapons of victory in the greatest catastrophe the world has witnessed—and, we may pray, will ever know. As the Royal Air Force celebrates its 50th Anniversary it is surely right that we should remember

some of its most famous squadrons and aircraft.

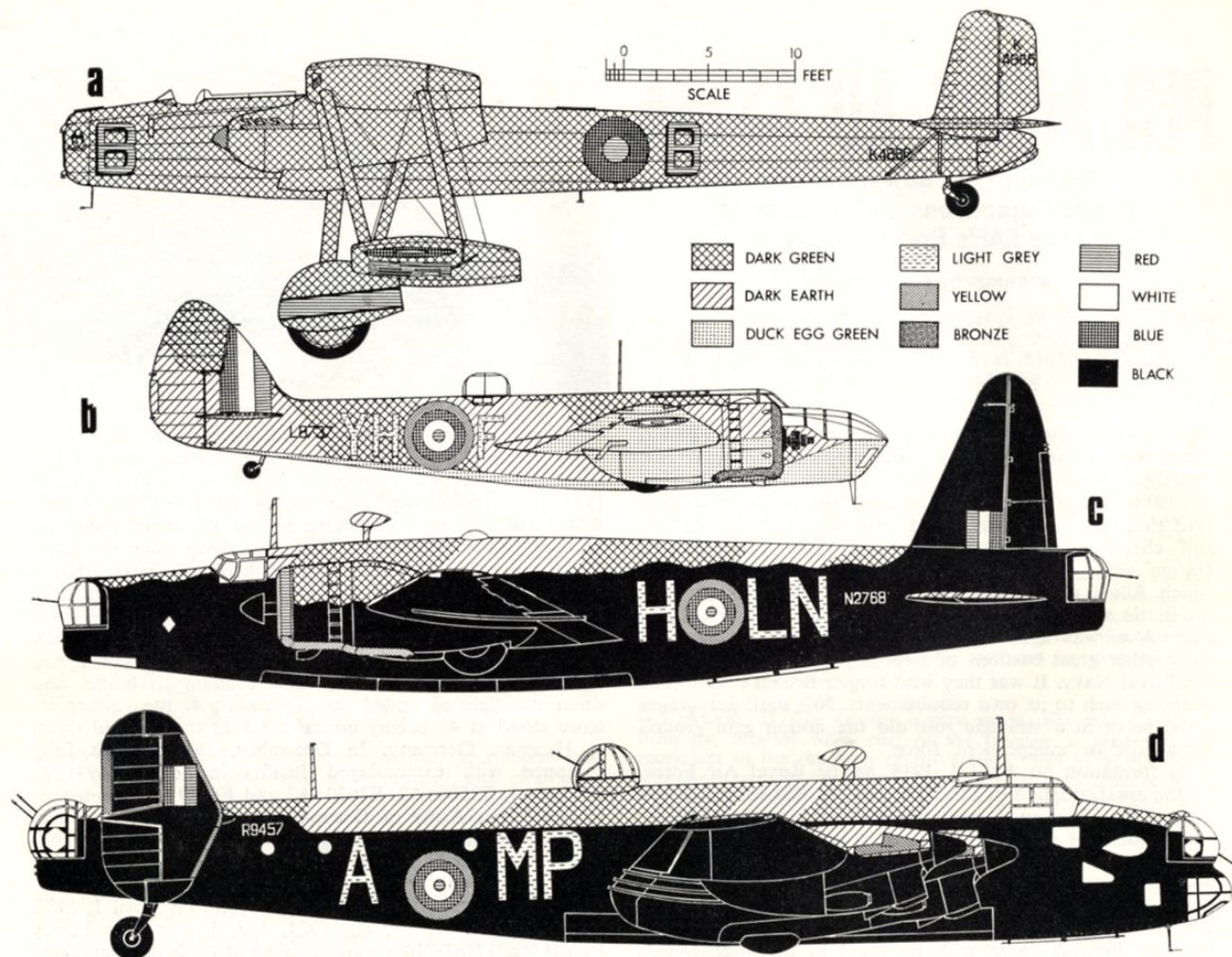
No 12 Squadron was at Soncamp, France, flying RE8s when the RAF was formed. It had been in France since 1915 flying mainly BE2 variants, eg, 6229 (BE2D), A2807, A2844 (BE2E). Its RE8s were in use for night bombing, artillery and infantry liaison and patrolling when the RAF was formed. In May, its first two Bristol Fighters arrived. 'Brisfits' were to remain in front-line squadron service until 1931. No 12 Sqn used its examples to spot for long-range guns, whilst RE8s such as C2286, C2298 and C2528 took oblique photographs for the infantry. Pfalz Scouts and Fokker Triplanes were frequently brought to battle, and when the fighting ended on November 4, the squadron's score stood at 45 enemy aircraft. No 12 then settled down at Heumar, Germany. In December, 1918, it was fully equipped with camouflaged Brisfits including F4942: A, F4413: A1, E2506: A2, E2630: A3 and F4429: A4. Co-operation with the Army of Occupation occupied the unit, one of only twelve squadrons which in November, 1919, constituted the Royal Air Force. In 1922 disbandment came, time for a complete revision of the force had arrived.

A new 12 Squadron formed at Northolt on April 1, 1923, using DH9As. In March, 1924, the first clumsy Fairey Fawns (eg, J7183-7186) were received at Andover. Parachute trials were undertaken, and two members of the squadron became the first in the RAF to use them in a moment of disaster. By then the squadron had Fairey Foxes, including J7941-7958, fast bombers able to out-fly fighters of the time—despite crafty attempts to prevent this and evade the implications of the situation! In some respects it was unfortunate that so often were the bombers of these years able to outpace the fighters, for it led to the belief that reasonably fast heavily armed bombers would get to the target in daylight—which they rarely did when war came.

In 1931, Nos 12 and 33 Squadrons were flying the Hawker Hart, again a bomber with fighter performance or, more appropriately, a bomber with the performance a fighter should have had. Resulting from a 1926 formulation, the Hart was soon to appear in a maze of names and guises, amongst them an army co-operation form known as the Audax.

No 4 Squadron, first to equip with Audaxes, received them in November-December, 1931 (eg, K1995, K1997-2007) and was followed some months later by No 13 Sqn using K2008-2017. No 26 Sqn equipped with them in June-July, 1933, using K3068-3078 for a start, and at the same time K3055-3066 were delivered to No 2 Sqn. Close support training using bombs and the message hook technique occupied all these squadrons. No 4 boldly applied their squadron number in flight colours on the rear fuselages of their aircraft, and

Continued on next page



Per Ardua Ad Astra—continued

usually the wheel discs of the machines were in flight colours—standard practice at the time.

When the expansion scheme was fully under way, new roles for Audaxes were found, (1) as initial equipment for new bomber squadrons including 77 and 211 and (2) as advanced trainers at Flying Training Schools such as No 7 (eg, K7456), No 9 (eg, K7328) and No 10 (eg, K7324). Elementary and Reserve Flying Training Schools training the RAFVR found some useful, too, K7428 serving with 22 E & RFTS at Cambridge having '33' ahead of its roundels in black from February, 1938, until March, 1939.

No 9 Squadron was one of the Vimy squadrons forming the heavy bomber force. The Virginia, its successor, equipped the squadron in many varieties from January, 1925, until March, 1936, when the dull green Handley-Page Heyford came into use at Aldergrove. With its curious wing arrangement, dustbin turret, huge spatted undercarriage, and swollen lower wing section, it was always a fascinating sight. Viewing time was plentiful, like its drag. Clambering around one was equally memorable. Entry was via a flimsy ladder from the lower mainplane. Then one carefully clambered along the slender, steeply-sloping fuselage to a lofty perch or a very windy nose position. Guns and not speed were there to defend the aircraft, and night-flying monopolised much of

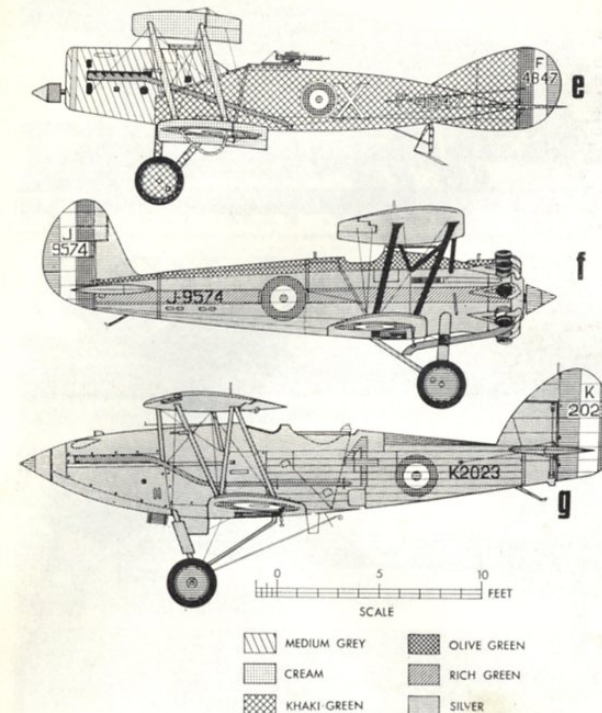
312

the training time on Heyford squadrons. Usually their aircraft carried a squadron crest on the nose alongside an aircraft letter, and had a flash on the spats in flight colour.

Many new RAF stations were now opening with the standardised style of factory-like hangars (usually four to a station) and a watch office centrally situated on the tarmac in front. The airfields faced across the North Sea, allowing aircraft to make the most of their range. Hemswell, Marham, Mildenhall, Waddington, Wyton—many on sites of airfields of long ago—and Scampton to where No 9 Sqn took its Heyfords in October, 1936, were stations from whence years ahead Bomber Command was to strike. The night-flying Heyfords practised long-range journeys and at the then great height of 15,000 ft. Bomber-versus-battleship; the old cry was raised and No 9 put it to mock test. When war began the whole of Bomber Command was pitted against enemy shipping, and No 9 made one of the first strike missions. During the Czechoslovakian crisis the Heyfords had stood dispersed and bombed up at Stradishall, targeted for Berlin . . . a one-way venture, we may assume, and possibly a hopeless one.

Whilst 3 Group's Heyfords prepared for a night campaign the light bomber force was revitalised with the first deliveries of the Fairey Battle in the summer of 1937 to Nos 63 and 105 Squadrons, and more important the fast Bristol Blenheim which looked a winner. Its wheels disappeared from

AIRFIX magazine



Key to drawings: (A) Handley Page Heyford II K4866, probably the only Mk II to wear the markings of No IX Sqn. The dark green was the special Nivo finish described in our December, 1966, issue. (B) Bristol Blenheim IVL, L8737: YH-F, of No 21 Sqn which fought during the bitter engagements over France in May-June, 1940. (C) Vickers Wellington Ic, N2768, 'H' of 99 Sqn. Code letters and serial very light grey. Exhaust collector ring on some Mk Ic aircraft was a reddish colour, but on this aircraft was a shade of mid-grey. Exhaust pipe was bronze-grey. Recorded at Waterbeach, March 22, 1941. (D) Halifax II, R9457: A, of 76 Sqn exhibiting the straight topside finish applied to some Halifaxes in 1941-42. Aircraft took part in the 'Thousand Plan' raids on Cologne and Essen painted thus. (E) Bristol F2B, F4847, of No 12 Sqn, in use after the end of the 1914-18 war. (F) Bristol Bulldog II of No 3 Sqn, typically representing the gay markings of fighters in the early 1930s. Squadron marking stripe extends from nose to tail. Wheel discs and spinner are in flight colours. (G) Hawker Audax, K2023, of No 4 Sqn, used between 1932 and 1935.

view when it was airborne—and crews sometimes forgot that they needed them for landing! It had flaps. Gone, then, the side slipping approach with motor chuckling that was such a feature of the Hind. Higher wing loading and such great power—these needed thinking about and it all added up to a requirement for extensive training schemes and, ultimately, special training squadrons then operational training units replacing conversion at squadron level.

Day and night operations were possible with the Blenheim. Its speed gave belief to the possibility that it could operate by day unescorted. It fell to two squadrons of Blenheims, Nos 107 and 110 flying N6184, N6188, N6189, N6240, N6195 (107 Sqn; only the last mentioned returned) and N6197, N6198, N6199, N6201 and N6204 (110 Sqn) to make the first strike a day after war commenced. Bad weather and an over-ambitious attack brought them crippling losses, a fore-taste of what was to come. No 21 Squadron, operating from Watton in 1940, encountered terrifying opposition during attacks on the enemy invading the Low Countries and France. Unescorted the Blenheims didn't have the speed to survive. Valiant attempts followed to penetrate by day deep

April, 1968

into Germany under cloud cover—but it was clear that the bomber offensive must be waged in darkness.

One of the squadrons that operated thus was **No 99**, first to receive the Wellington aircraft which operated with distinction throughout the war. After its fabric was burnt away there remained the immensely strong geodetic construction, half-naked Wellingtons being a not uncommon sight after a gruelling night. For 99 Squadron, which operated from Newmarket Heath from September, 1939, and Waterbeach in 1941, these years were hectic. On its first operation it dropped pamphlets, then came armed reconnaissance culminating in the disastrous encounter of December 14, 1939, when five out of 12 aircraft failed to return. N2887:LN-J was one of the force, whose aircraft had brown and green finish extending still down the fuselage sides, medium grey codes, and Type A fuselage roundels. Such markings were still being worn in March, 1940, when I visited the Heath and noted LN-F:P9222, a Mk 1a, and N3005:LN-Q, a Mk 1c. Soon the squadron was to be fighting over Norway and at night over France. In March, 1941, it moved to Waterbeach, by which time the Wellingtons had the black of their under surfaces terminating in a wavy line along the fuselage sides, the long side windows usually over-painted and the fin and rudder black. Red fabric patching gave testimony to flak holes all too often. A night of excitement came when R3222 scored a direct hit on a capital ship at Brest, to which the squadron frequently flew. On one such occasion in September, 1941, a few of the aircraft were airborne and heading west when a glare suddenly lit the sky for some miles around. It marked the grisly end of X9703:LN-G, which crashed before getting away. At this period a few Wellington IIs were with 3 Group squadrons, equipped to carry 4,000 lb bombs. LN-Y:W5436 was one, another was W5460:LN-Z in use July, 1941.

Long range, heavy defence armament and great load carrying were featured by the Handley-Page Halifax equipping Nos 10, 35, and 76 Sqns by the end of 1941. A few daylight raids were attempted, resulting in high losses and plentiful damage. On a day raid on La Rochelle on July 24, 1941, all nine of 35 Sqn's contribution were damaged and two lost. TL-H:L9500 was one machine used on the raid. In December, 1941, two attacks were made on Brest in daylight, TL-A:V9978 being one aircraft used. Halifaxes formed part of the force for the '1,000 bomber' Cologne raid in May, 1942, L9482:MP-D and W1035:MP-U among them. At this time the bombers still had their grey code letters.

The Avro Lancaster—like the Mosquito—was evolved as a result of its manufacturer's initiative. **No 83 Sqn** began using this outstanding aeroplane in May, 1942. On August 15 it moved to Wyton where, six days later, I noted OL-M:R5626, OL-K:R5754 and OL-T:R5630 amongst others in the standard paint scheme, as well as DK318, a Mosquito IV of 109 Sqn, as yet uncoded and in grey-green finish with blue spinners. Together the two types were to revolutionise the bomber offensive in 1943, beginning with the Essen raid on March 5, when R5626 was well to the fore. Her dispersal being near the St Ives road soon made her my favourite! By August 17, JA705 was coded OL-M, and took part in the large raid on Peenemunde. The end of the year saw '83' and large numbers of Lancasters of 5 Group fighting the Battle of Berlin as the Heyfords of only five years before could never have done. In 1944 and '45 the Lancasters were to prove magnificent machines whose bombing capability in all weathers was to become excellent.

In any survey of outstanding RAF aircraft one cannot overlook the Spitfire and Hurricane. Whilst dealing much

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313

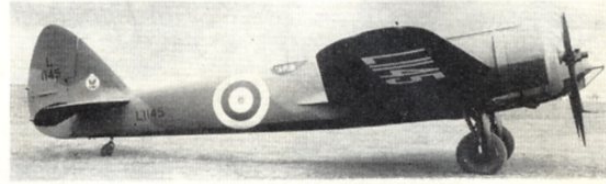
Per Ardua Ad Astra—continued

with these in our current Fighting Colours series (to continue next month) we have mentioned many squadrons lesser known than '83' and it is well to remember their major contribution to the war effort. One such squadron was **No 236** formed with Blenheims, and by 1944 operating Beaufighter TFXs in rocket firing, torpedo, and bombing roles. The skill required on these sorties, their frustrating nature and the immense courage they required have received little recognition. In narrow Norwegian fiords the Beaufighters and Mosquitos faced tremendous defensive fire to halt the flow of iron ore from Narvik to Germany, and stop movements by coastal shipping. No 236 Sqn operated Beaufighters until its ultimate disbandment on May 30, 1945, and concentrated its efforts flying from North Coates to strike shipping off the Dutch and German coasts. Its Ocean Grey and Sky Type S Beaufighters used in the last few weeks of the war included RD456:MB-B which sank a midget submarine on April 12, NV360:MB-H, and RD509:MB-U. These aircraft had Sky codes, whereas in 1944 red was usual.

As the war was ending, jet propelled aircraft were being introduced by both sides. Germany's plight led her to throw into battle good aircraft with none too reliable engines, whilst in Britain the accent could afford to be directed more to development than production. Nevertheless, Meteors joined **616 Sqn** in July. Next month they were operating from Manston, EE219:YQ-D among them, against flying-bombs. Although their wartime operations were limited, Meteors gradually ousted the Spitfires from Fighter Command in the post-war air force. First came the Mk IIIs then the Mk III with enlarged nacelles, before the flood of Mk 4s and 8s which defended the country in the early years of the Cold War. Accustomed to camouflaged aircraft, one was now given a somewhat brief reminder of the colourful pre-war days, for the Meteors from 1950 onwards portrayed the most colourful squadron markings the RAF has ever adopted. Apart from conventional squadron markings the Meteors had tails of all colours—even pink! But sinister events brought back camouflage, albeit glossy, in which the Mk 8s sweated out their days until the glamorous Hunter took over the role of home defence and fighter-recce.

Until 1954 the Mosquito was ready to defend Britain by night, a task it had been allotted since 1942. There now came the era of the Vampire NF10, Meteor NF11, 12, 14, and the Venoms, to be ultimately ousted by the all-weather Javelin, and finally by the any-weather Lightning.

Throughout its history the Royal Air Force has maintained in its ranks flying and ground crews whose qualities, training and tradition combine to make them superior to those of all other air forces—irrespective of their size. Too frequently the Royal Air Force has been forced into battle using aircraft outdated due to the political whims and ignorance of statesmen often gone before the consequences have to be faced. The Service has, nevertheless, faced the situation with extreme courage when the call has come. For so many the example set on the night of May 16-17, 1943, by the Lancasters of **617 Squadron** is the one that will be forever remembered. Should the squadron be engaged in



Top to bottom: K2674, a Vickers Virginia of No 10 Sqn in Nivo green finish. Points of interest are the tailwheel, large under-wing Type B roundel alongside black serial, and a white individual letter. K7666, a Fairey Battle I of No 218 Sqn. Unit letters grey. Later it became Q:218 and was used by the squadron during 1938, and later by 185 Sqn. L1145, a Bristol Blenheim I of 57 Sqn, whose crest appears on a disc on the fin. In the early months of the war, L1145 was used by the squadron for recce work from a base in France (Photos by R. Gascoigne). The Spitfire was surely the most beautiful aircraft ever operated by the RAF. Seen in her element in this very rare picture is a PR Spitfire, P9385. Overall finish seems likely to have been a shade of blue, the codes a grey colour or perhaps pale blue, similarly the serial. Beneath the latter appears the number '15'. Interesting, too, are the unusual roundels (Photo: B. C. Morrison). **Below, left:** The RAF has been well served by its reserve forces, the RAFVR and the RAuxAF. Here Nos 615 and 600 Sqns are flying Meteor 8s, WH280: E nearest (MoD photo).

war once more it might well again be at low level. It would still be a mission summoning courage and fortitude and emotionally charged. To prevent such an operation the RAF needs to maintain strength, the recent reduction of which history will surely judge as a major blunder.

It is unpopular at the moment to be nationalistic and patriotic in our country, whilst the rest of the world teems with such sentiments and has little but derision for our attitude. It is staggeringly foolhardy when so many have no friendship for us, to repeat that tragic state of allowing our strike force to fall into the position it found itself in 1940.

In its fifty years the Royal Air Force has needed to fight using many others than its primary weapons. Words, wishful thinking, ignorance and crazy notions have proven unpleasant foes.

At this period of the history of the Royal Air Force these are points upon which all should reflect. Those who served in the RAF can be mighty proud to have been a part of the finest air force the world will ever know.

AIRFIX magazine



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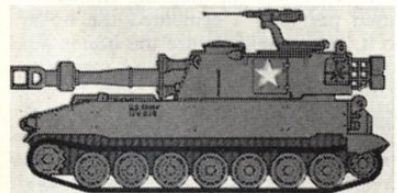
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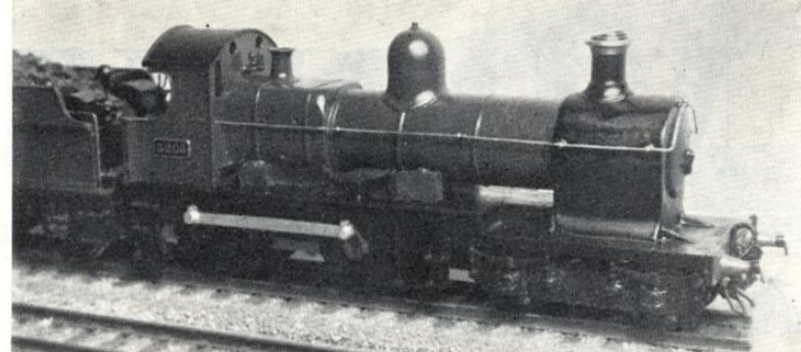
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BY **NORMAN SIMMONS**



Above: Most ambitious conversion so far tackled in this locomotive conversion series is the 'Dukedog' which utilises City of Truro parts and Prairie driving wheels. A motorised tender provides the power but you could use the motorised Kitmaster box van reviewed this month on page 319.

BUILDING A GWR 'DUKEDOG'

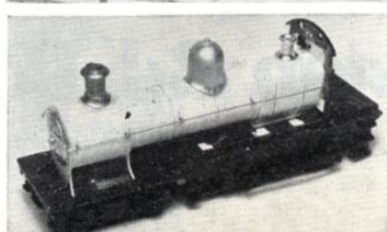
NOMINALLY a new class first appearing in 1936, the 'Dukedogs' were built from frames from withdrawn straight-framed 'Bulldogs' to which were fitted Duke type boilers and cabs—hence the quite unofficial nickname Dukedogs. They were originally named after Earls but someone took exception to his title appearing on such a diminutive engine and by mid-1937 the dozen or so locomotives that had been named had their nameplates removed. They were subsequently carried by 'Castle' Class 4-6-0s so honour was satisfied.

Twenty-nine of these locomotives were built with the numbers 3200-3228. They were renumbered 9000-9028 in 1946 to make way for a new batch of Collett 0-6-0s. Though all the Dukedogs are now withdrawn from BR service, 9017 was purchased in 1960 and is privately preserved, to be seen on the Bluebell Railway. They were extremely popular engines, especially as in their last 10 years of service they presented quite a unique appearance and were the last standard gauge outside framed locomotives in BR service. They were to be found throughout the GWR system but their stronghold was the former Cambrian Railway main line where they were often to be seen on the Cambrian Coast Express.

As in the real thing, so in our model and the chassis up to footplate level is built exactly as for the 'Bulldog' described in the December, 1967, issue of AIRFIX magazine. Briefly this consists of fitting extended axles to four Prairie tank coupled wheels and fitting them to the City of Truro footplate and frames. See the last two issues and the December, 1967, issue of AIRFIX magazine for a detailed account of this operation.

Figure 1, which gives a general arrangement drawing of these locomotives, also provides all the dimensions required for constructing the boiler. This must be entirely scratch built. I used 10 thou plastic card wrapped round wooden dowelling for the boiler and smokebox and built the firebox out of 40 thou plastic card. A piece of $\frac{1}{8}$ inch dowelling, 44 mm long, was cut for the boiler and $\frac{1}{4}$ inch dowelling, 19 mm long, was cut for the smokebox. I found that two strips of 10 thou plastic card wrapped round each of these pieces of dowelling brought them up to the exact dimension required for the boiler and smokebox respectively. Now turning to the front view, Fig 2, I cut two pieces the shape of the smokebox front from 20 thou plastic card. These were cemented at either end of the smokebox ensuring that their flat bases were exactly parallel to each other and that the top of the smokebox was level and at the correct height from the footplate. The smokebox was fitted to the City of Truro footplate by slotting the rear piece of 20 thou card into a saw cut made immediately to the rear of the City of Truro

Below: Another view of the completed model and the model under construction prior to fitting the cab.



smokebox saddle. Two notches had to be cut in the base of the smokebox front to clear the vertical frames. Subsequently the shape of the smokebox immediately above the footplate was built up with Isopon but this stage comes much later and the smokebox should not be cemented in place yet awhile.

When I was satisfied the smokebox fitted perfectly I cemented the boiler to it, again making sure the boiler was at the correct height and perfectly parallel to the footplate. The firebox was next constructed from 40 thou plastic card, four layers at each side and two layers at the top. The four layers at the side were progressively reduced in height to step them upwards and outwards to bring the width out from 13 mm at the base to 20 mm at the centre line of the boiler. Isopon was used to smooth the transition from the narrow base and when thoroughly dry the firebox was carved, filed, and sandpapered to shape. The various layers of plastic card allowed plenty of scope to round the edges of the top and front corners of the firebox. The firebox was then cemented to the boiler and boiler bands cut from 10 thou plastic card were fixed with liquid cement. The hollow firebox was filled with lead to bring as much weight as possible over the coupled wheels.

With the core of the boiler filled with wooden dowelling, I was not able to open out the ends of the split pins I normally use for handrail knobs. I found, however, that a No 71 drill gave a nice tight fit to the split pins and a drop of Britfix Epoxy Adhesive ensured they did not work loose. The 26 swg handrail wire was bent and fitted at this stage.

A K's Dean 0-6-0 dome and safety AIRFIX magazine

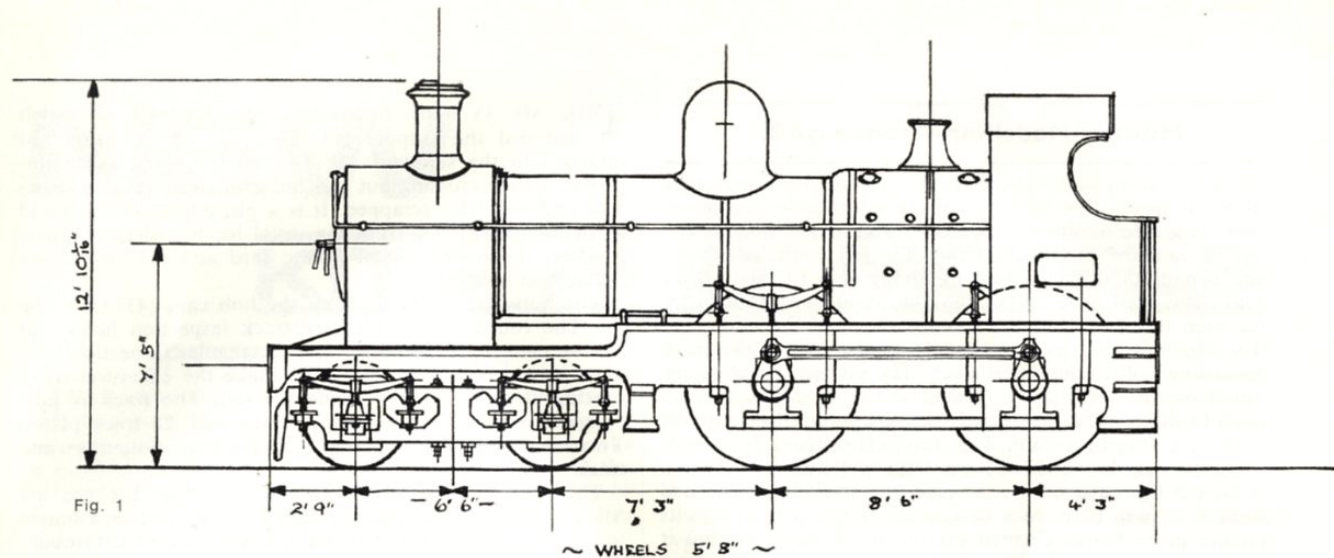


Fig. 1

valve cover (available separately) were used as boiler mountings. The chimney I used was one I picked up rummaging in a model shop some years ago. So far as I know, there is no ready-made chimney for the 'Dukedog', at least not for the copper capped variety. A K's Dean 0-6-0 chimney would possibly do for the tapered cast iron chimney which were fitted when the locomotives first came out but luckily there is an easy way out for the copper capped variety which were carried for most of their life. This is to use a City of Truro chimney. If you have a spare one left over from previous conversions so much the better. Cut off either the base or the cap of the chimney and lengthen the stem with a piece cut from the second chimney. If you haven't a spare, a piece of dowelling the right diameter will do. The smokebox door was purchased from BMW Models price 6d, and available by post if you send them a SAE and mention this article. The boiler was painted at this stage before fixing to the footplate.

The cab was basically City of Truro with a few amendments. First, because the boiler is considerably lower than the City of Truro boiler it was necessary to fill in the front of the cab front with Isopon. The whistle holes also needed filling in and new holes drilled lower down. It will be seen

from Fig 1 that the front of the cab is further forward than the City of Truro and the side sheets are correspondingly longer. These were extended with plastic card. One thing that cannot be made clear in Fig 1 is that the back edges of the cab sides are curved outwards on a radius of about 9 scale inches to meet the edge of the footplate so the plastic card extensions to the side sheets also had to be curved at their edges. Purists might object to using the City of Truro cab front since the firebox will be considerably higher inside the cab than out. This is up to you. If you have the time to spare it would be perfectly possible either to modify the City of Truro cab front or scratch build a new one, but in my case, with a locomotive conversion each month, I find I am hard pressed enough and the irregularity is hardly noticeable.

Splashers were City of Truro splashers cut down in height to 4.5 mm at their centres. Nos 3200, '5, '8 and '9 had the City of Truro sandboxes as can be seen in the photograph of my completed model of 3208. The others had just plain splashers without sandboxes, similar

Below: Close-up of the plastic card boiler which has K's fittings, though a modified 'City' chimney could be used. Frames and pony truck are from City of Truro also.

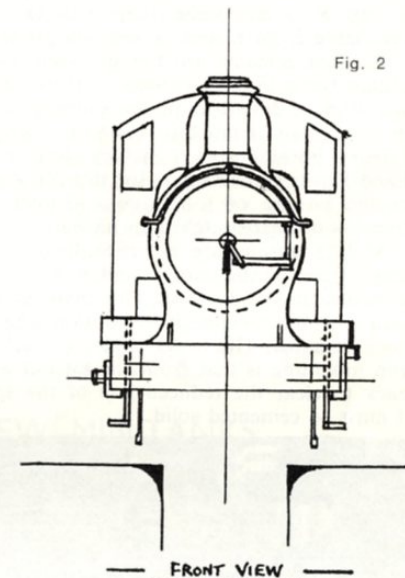
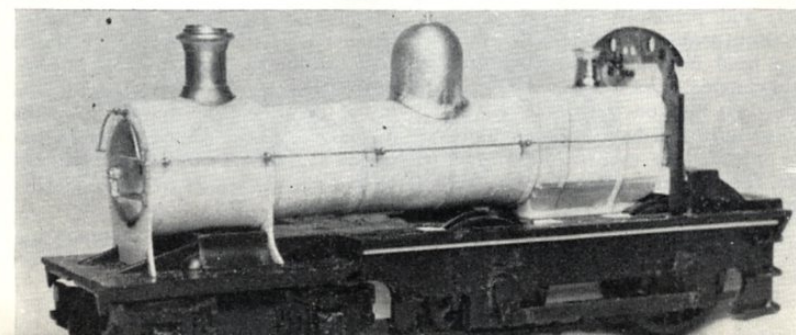


Fig. 2

to the 'Bulldog' model in the December, 1967, issue. The final operation was to cement the boiler in place and fill in the smokebox saddle with Isopon. I find this an excellent material to use. It dries relatively quickly and although it becomes rock hard it can be carved, filed and sandpapered with ease to a very smooth finish which needs no priming before painting. Handyman and hardware shops sell it.

A wide range of engraved brass numberplates is available for the 'Dukedogs' including the following: 3200 Earl of Mount Edgcumbe, 3201, 3204, 3205, 3208 Earl of Bathurst, 3210, 3214, 3215, 3218, 9017 and 9023. Also available from most firms is 3265 Tre Pol and Pen—a fascinating

Continued on next page

Military Modelling—from page 295

cut in the front and back faces. If you are using stretched sprue, however, it's easier to make a separate section of pipe each side of the stowage box faces.

The standard Mk IV had rails for the unditching beam and I made these from strips of 2 mm wide 10 thou plastic card. The plan view shows the run. You need four strips for each side to follow the lozenge shape of the hull. First strip, 16 mm long, is cemented from the top of the track tensioning bolt to the driver's cab. The second, 36 mm long, runs from the driver's cab (cemented by its edge to the cab roof) to the commander's hatch where a 5 mm deep support holds it to the tank roof. The next section runs from here to the stowage box and is 22 mm long, while the next section is on the top edge of the stowage box itself, and the final section, 22 mm long, runs to just above the rear axle bolts on the inner horns. Cement each strip on in order and it becomes a simple task. The unditching beam is a 38 mm × 3 mm × 3 mm balsa strip with OO gauge signal chain (available from model railway shops) wrapped round it.

All that remains are the sponsons and most people will plump for a Female version as these are very simple. Construction is described in the tadpole tail tank section. My only deviation from this was to use lengths of Bloodhound Missile booster rocket halves—left over from January's Land-Rover conversions—for the gun mounts as the mounts in the kit are of too large a diameter, strictly speaking. Lengths of heat-stretched sprue were used for Lewis guns.

Male sponsons are more challenging and can either be made from plastic card or cut down from the kit sponsons as shown in the drawing. This involves sawing off the front face and re-cementing it in position when the remainder has been trimmed. The lower angles are achieved by filing. The gun mounting is that from the kit but has to be set further back to clear the reduced size of the sponson. This means it must be cemented solid.



THE Mk IV tank had many variants, one of which included the tadpole tail. This was an extension tail attached to the standard Mk IV and it gave a much improved trench crossing but was unfortunately weak in structure and was later scrapped. It is a pleasing model to build as its contours differ from the usual lozenge shape. A new side has to be built from plastic card and drawing shows the correct shape.

The hubs can be made from the hub caps (43) from the kit. The round black holes are track inspection holes and can be painted on the tank. The rectangular inspection hole must be cut out of the sides. To make the extension rigid, bracing struts are glued inside the tail. The track is now extended with an extra piece of track with 28 track plates. Two kits must thus be bought as the gun mountings and track are needed.

The sponsons are the next job to tackle. I chose my Mk IV to be a female, armed with Lewis guns. It is a simple job as long as it is taken steadily. Use plastic card throughout, and take the measurements from the scale drawings. Side, top, bottom, and ends must be cut out and can be assembled in position on the vehicle sides.

The gun mountings from the two kits are glued to the inside of the sponsons. The gap that is left in the sponson opening is filled with a piece of card 25 mm × 8 mm. Escape doors are glued on to this, each being 8 mm × 7 mm.

The hull is next. Make it up following the kit instructions but with the following variations:

- The commander's hatch (46) is filed flat and glued in place.
- The driver's hatch is removed and a new piece of card covers the whole area—as described for the Mk IV.
- The original exhaust is kept but an additional length is extended all the way down to the rear (I used some hand rail from the 'Old Bill' Bus).

Finally, the stowage box on rear of the hull, the external rear fuel tank, and the sloping back plate are made as described for the standard Mk III and IV. Colour schemes varied but a dark green is perfectly authentic. On the front horns of my model red and white identification stripes are painted and also on the driver's turret, as shown in the photograph. This tadpole tail variant omits the unditching beam and rails as carried by a standard Mk IV.

D. McHenry

Left: The completed Mk IV with tadpole tail.

German Infantry—from page 297

the situation had become acute and improvisation prevalent. Often, a man who had no pack would wrap his possessions in a ground sheet, tie it up with string, and then strap this bundle to his pack harness. Leather marching boots were, to a large extent, replaced by ankle boots and puttees exactly similar to the British style. A small bayonet with a four-inch blade, which could also be used as a trench knife, took the place of the older sword bayonet. Clothing was of a very poor quality and the puttees were so shoddy that they were commonly said to have been made of paper.

It is a simple enough matter to make a 1918 German in puttees; take 318

a World War 1 British figure, change his head for a steel-helmeted German head, shave away pocket and button detail with a craft knife, remove his accoutrements and replace with appropriate German gear. For 1918 this can be very sparse if desired—just a gas mask case and canteen at its simplest (as shown in the drawing)—though cartridge pouches would be usual, and probably an entrenching tool. You could, of course, sometimes use a head in field cap instead of a steel-helmeted head.

The two lugs on the crown of the 1916 pattern steel helmet, incidentally, were intended to take a hinged face visor for sniping, though this was rarely used.

Dukedog—from page 317

name and a most interesting locomotive. It was rebuilt with 'Bulldog' frames as early as 1930 and actually was the forerunner of the 'Dukedog' class, although it was never incorporated into the 'Dukedog' number series and remained a 'Duke' until it was withdrawn in December, 1949. All the other 'Dukes' had curved frames similar to the curved-frame 'Bulldog' described in the February issue of AIRFIX magazine. It would of course be perfectly possible to combine these curved frames with the boiler described this month to make a 'Duke'. 'Duke' names and number-plates available include 3265 referred to above, 3270 Earl of Devon, 3281 Cotswold and 3283 Comet.

AIRFIX magazine

NEW

KITS AND MODELS

SPITFIRE FROM JAPAN

MOST interesting of the latest batch of Japanese aircraft kits we've received is a Spitfire Vb from Nichimo, a welcome addition to the still-limited range of Spitfire marks in model form. This one is described as 1:70 scale on the box but turns out to be precisely 1:72 scale. With one or two minor exceptions it is a good accurate kit, easy to assemble, with excellently fitting parts.

We faulted it on the too-slender cowlings which certainly wouldn't hold a Merlin engine. This could be remedied to a great extent, simply by filing the cowlings top down to a flatter profile. The spinner is too long and pointed for a Spitfire V and the prop blades are too fat, but again these points could be taken care of by filing. One other crude feature is the pilot moulded in one piece with the seat. These apart, this Spitfire is well worth having, particularly as the faults can be corrected by the average modeller. The ammunition blisters are all in the right place, the panel detail is accurate, and the rivets, if somewhat prominent at first glance, are much less obtrusive after painting. The transfer sheet is about the best we've seen in a Japanese kit of a World War 2 RAF aircraft, though the codes and serials given—for the first production Mk V—do not match the 'C' Type roundels. Other good features of the kit are the retracting undercarriage—very effective—and hinged ailerons. Price is 4s 11d and our sample came from BMW Models who hold stocks.

C.O.E.

MOTORISED BOX WAGON

OUR sample popped the circuit breaker every time we tried it until the fault was traced to a blob of solder making intermittent contact with the massive lead ballast weight. On examining the mechanism we were shocked to see how loosely the lower end of the vertical magnet was fitted to the chassis. It could be made to rock quite considerably and as the magnet carries the brush gear this in turn could be made to move up and down around the commutator. This, coupled with the fact that the armature was not even central in the pole pieces and the gap between armature and pole pieces varied with the rocking of the magnet, we were surprised the motor worked at all. But it did work and produced a surprising amount of power. Slow speed control was not all it could be but it was a ready and willing starter and the ballast weight ensured maximum tractive effort. A



The Kitmaster motorised box-van showing body removed. April, 1968

train of 16 mixed wagons, Airfix, Peco and the heavy cast metal Ks, plus one non-motorised Airfix locomotive was found to be a comfortable load. It was a pity that on our sample one of the pair of wheels was badly out of true and the wagon pitched and rolled like a bucking bronco. It is only fair to say that our sample may well have suffered in the post, causing the electrical faults referred to above.

The moulded plastic box-van body (standard LMS/BR type) is beautifully detailed but there is no built-in method of firmly securing it, or the two separate black plastic sole-bars and axleguards, to the chassis. Most average modellers would be able to devise a scheme (like UHU for the side frames) but an advertised 'ready to run' product should not really require this sort of attention. It is probably true to say you get what you pay for and 25s each, or two for 40s, is remarkably cheap for a motorised wagon such as this. There is no doubt it is economical and useful as a power source for non-motorised Airfix locomotives and conversions like those we've featured recently, and a few evenings' work would probably iron out the faults. One or two such box-vans would enable you to drive a whole stud of plastic locomotives. But we must admit that as far as our sample goes, the box lid description 'ready to run' is a bit of a misnomer. Stocks are limited but Beattie's of 1 The Broadway, London N14, are able to supply them by post at the above-mentioned prices while stocks last.

N.S.

NEW MINITANKS

LATEST items in the Minitanks range to come to us for review are models of the Sd Kfz 7 half-track prime mover and its Quad-20 mm flak vehicle derivative, the Sd Kfz 7/1 as we featured in Airfix Sd Kfz 7 conversion articles a few months ago. These are excellent little models with folding windscreens and folding sides in the case of the 7/1. Tracks are in one piece on these models and, at 1:86 scale, they are, of course, smaller than the Airfix model. A nice feature of the Sd Kfz 7 model is the pair of spare wheels on the back. Price of each model—they come ready assembled—is 3s 9d and they can be obtained from the British importers, Model Hobby Products Ltd, Akroyd Place, Halifax, Yorks, when they cannot be obtained locally. BMW Models, Modeltoys, and other leading hobby shops now stock Minitanks, however. A new 1968 Minitanks catalogue is available free from the importers if you send a large SAE.

C.O.E.

MILITARY PAINTS

WELCOME news from BMW Models for military fans is a range of 15 colours added to their Modelcolor range specifically suitable for tank models. As with the aircraft paints, these come in groups for the different nations involved. Paints T1-4 are respectively ochre, green, brown for French tanks in 1939 and the current French khaki-green. T9-10 are British 'sand' and green, T5-8 are German

Continued on next page

New Kits—continued

dark grey, sand-yellow, wine red, and dark green respectively. T13 is Japanese dark green, T11 is US Army olive drab, and T12 is Russian dark green. The other two colours are plain white for winter finish and metallic grey for tracks. All are matt colours and to the same standard as the earlier Modelcolor aviation paints, and should solve the problems of all those modellers who write and ask us what colours are suitable for painting tanks.

T7 wine red in the German lists is, in fact, more explicitly dark red-brown as used in mottle finishes, etc. The US olive drab is a fairly 'brown' shade and this colour varied considerably through to a greenish colour like T10, the British olive green. All the paints come in ½ oz tins and cost 2s each, which is quite reasonable for an imported paint—many are more expensive—and there is, of course, an end to the chore of mixing the colour from several other shades. BMW Models, 329 Haydons Road, London SW19, are the suppliers. C.O.E.

WAGON LITHOS

COLLETT Models have favoured us with a sample of each of their first two OO scale colour printed wagon body lithos. They are nicely detailed and clearly printed with even the smallest lettering clearly legible. Sheet 1 includes two cement vans and one cement wagon in yellow with black lettering and strapping and blue Portland Cement circles. Sheet 2 in red oxide with white lettering and black strapping includes two china clay wagons and a coke wagon. Spare alternative numbers are included if you wish to build a fleet.

The vans and wagons differ slightly in size. The two van bodies will fit a standard Tri-ang chassis and the wagons will fit Peco Wonderful Wagon chassis for which parts can be purchased separately. With the recent welcome news that some of the Airfix wagons are going back into production, an obvious choice will be the Airfix Mineral Wagon since its chassis can easily be extended or shortened to match any of these body parts. We hope to demonstrate this in a feature article shortly. The sheets are available from Collett Models, 135 Winter Road, Southsea, Hants, price 3s each, and can be thoroughly recommended as a quick and easy means of adding to one's OO scale wagon fleet. N.S.

NEW SELLOTAPE

SELLOTAPE is an essential aid for modellers, masking, canopy framing, and repairs being among its most common uses. It can also be used to bind parts together while the cement dries, or to hold parts temporarily in place. We've just received samples of some of the latest types of Sellotape, including the new double-sided tape which is sticky on each side and complete with protective backing which is peeled off before application. This is handy for holding stuff like plastic card together while you cut out two identical shapes at one go, or for joining railway track to a baseboard. A ½ inch roll costs 2s.

Sellotape 'X' is a tough fabric kind of tape available in colours like grey, green, and brown. A 9 ft roll costs 2s and this kind of tape, apart from being intended for heavy repairs about the home, is quite good for insulating low-voltage electrical connections as on a railway or slot-racing layout. Sellotape make a special insulating tape for domestic electrical connection, however.

Finally, there is coloured tape available in red, blue,

brown, grey, green, light green and yellow. This is very thin and ideal for using straight from the roll for cockpit canopy or window framing where the colour match is suitable. Where it isn't suitable, incidentally, the thing to do is paint clear Sellotape in the appropriate colour and then cut it into strips. Finally, there is a range of fluorescent coloured tapes including a shade very near day-glo orange. For larger scale car and aircraft models, this tape is so thin that it could probably, in some cases, be used for lining and cheat lines applied straight on to the model after being cut into strips of the requisite width. Standard price for most of these rolls is 2s each, and they are obtainable from virtually all stationers. C.O.E.

NEW TANKS

THREE superb new kits have been added to the Nichimo range, all to the 1:35 scale popularised by Tamiya and all motorised in the Tamiya tradition. These are the Chieftain (37s 11d), Abbot SP 105 mm gun (27s 11d), and M109 SP 155 mm gun (also 27s 11d). We are still making these at the time of writing, but all appear to be very accurate and the detail and finish is certainly impeccable. The gear trains, moulded in nylon, are just about the best yet in this price range, and come already assembled, as does the motor and its mounting plate and switch gear. In our Abbot and M109 samples they were supplied ready installed in the chassis, but in the Chieftain we had to screw them into the chassis location ourselves. The power is supplied by two torch batteries and the switch gives forward or reverse. We've not been able to fault these kits on detail, though the transfers are not entirely accurate on the two British models. US transfers are given for the M109, but a British finish could be applied as M109s are now in British army service. The Abbot and M109 are made in polystyrene but the Chieftain appears to be in ABS plastic. We are taking no chances and using the ABS cement supplied in the kit for assembly of this model, as polystyrene cement may be unsuitable. Rubber tracks, and suspension which works are standard. BMW Models of Wimbledon hold stocks. C.O.E.

F-5 AND T-38

THE latest Hasegawa kits to reach us from Japan are the T-38 Talon and F5B in 1:72 scale. Each is a delightful model and a good companion to the Airfix F-5 Freedom Fighter. There are 50 parts moulded in white plastic which all fit reasonably well together. The odd exception is the extensions to the leading edges of the wings for the F-5 version, which will need filling with body putty.

Although the illustrations on the kits' instruction sheets are good, this is one time when a failure to read Japanese can lead to a mistake in assembly. A study of photographs will reveal that the extreme nose and leading edge wing roots differ between the F-5 and the T-38. The kit illustrations do not pick this out sufficiently and the unwary are likely to fall into the trap of building a T-38 in F-5 configuration.

The transfer sheet contains markings for a USAF T-38 and a Royal Canadian Air Force F-5. The markings are reasonably accurate but the maple leaf insignia in the centre of the Canadian roundels looks rather suspect, being too 'spiky'. A large collection of underwing and wing tip stores are included, similar to other Hasegawa products. These make most useful additions to kits of this nature as if not used on the parent kit they can come in very useful in the spares box for another model or conversion.

The price of each kit is 4s 11d, and BMW Models hold stocks. A.W.H.

AIRFIX magazine



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BELLONA TANK PRINTS

For the benefit of modellers and military enthusiasts we publish highly detailed SCALE TANK DRAWINGS in sets every few months. Drawn by experts, these are all to exact 1:76 scale (4 mm. to one foot) and show a minimum of four views with sectional views when possible. Models made from these drawings will fit in with Airfix models of the same scale. On the back of each drawing is a comprehensive history of the vehicle together with relevant technical details.

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Series 3 Matilda (U.K.), Tankette Type 97 (JA), M.18 Hellcat (US), M7B1 Priest (US).
Series 4 StuPz IV Brumbar (GE), JgdPz 38(t) Hetzer (GE), T34/85 (SU), KV1 and 11 (SU), PzKpfw IV J (GE), StuG III D (GE), Cromwell IV (UK), Jeep with trailer and Seep (US), PzKpfw III F (GE), M.41 Gorrilla (US), SU 85 (SU), Sherman VC Firefly (US).
Series 5 Jagd Panther Sd Kfz 173s (GE), Comet (UK), Super heavy tank T28 (US), (double page).
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Series 7 Carro Armato Tipo M13/40 (IT), Sd Kfz 139 'Marder 111' (GE), 15 cm. GW, 'Lorraine' (GE), A7v Sturmpanzerwagen (GE).

Country abbreviations: UK: United Kingdom; US: United States; SU: Soviet Union; GE: Germany; JA: Japan; IT: Italy; FR: France; SW: Sweden; HO: Holland; CA: Canada; A: Australia; SZ: Switzerland. Each series costs 4/- post free. Airmail 1/6 per series.

- | | |
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| T2 France 1939 Green | T9 British Sand |
| T3 France 1939 Brown | T10 British Green |
| T4 France 1968
Khaki Green | T11 U.S.A. Olive Drab |
| T5 German 1939
Dark Grey Blue | T12 U.S.S.R. Dark Green |
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More rare pictures from readers with captions by **Michael J. F. Bowyer**. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.

Key: (1) In our May, 1967, issue we pictured Albacore N4176:4R, which L. W. Hart now identifies as from 828 Sqn, FAA. He sends this view of another 828 Sqn machine N4421:4Q in mid-1941. Note the 'witch on a broom' emblem. Machine is camouflaged dark sea grey/light sea grey/duck egg blue. This aircraft crashed aboard HMS *Victorious* in June, 1941, soon after 828 Sqn embarked. (2) Another Albacore, X9214:4L, of 822 Sqn takes off from HMS *Furious* during the 'Torch' landings in North Africa. Note star applied over British roundel for these operations. (3) One of the first Seafires aboard HMS *Furious*, coded R and possibly serialised 78342. Can anyone add further details? Pictures by Nigel J. Pearce.



Key: (4) He 111 6N + DH of KG 100 crashed in North Africa in 1942. It has modified splinter camouflage and national insignia partly over-painted. '6N' is repeated high on fin in small white letters. Picture by Fred L. Bernstein. (5) Spitfire 24s of 80 Sqn, RAF, during the Korean War. Note narrow black/white UN stripes round wings and tail. (6) A PB4Y, CE-8, of the US Navy; 'midnight blue' overall. (7) All-yellow Harvard 11b, FX493, with black anti-dazzle panel and serials. All pictured at Kai Tak, Hong Kong, in 1950 by B. Millington.

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Letters to the Editor

Fighting colours

IN your series, 'Fighting Colours', Part 4, the following statement is made, '... leaving the entire remainder of the under surfaces of Spitfires and Hurricanes rich duck egg green. The order was also given to apply a lighter shade of duck egg "blue"—the pale Sky Type S of succeeding years—'

It seems that the 'ghost' of duck egg green/blue will never be laid. The name was a journalistic description of Sky Type S and was used in a number of publications of the early war period. The official camouflage and markings drawing for the Spitfire records that the change from black and white to Sky Type S was made on June 10, 1940. In answer to a letter, Michael Bowyer states that Sky Type S was so called to differentiate it from 'duck egg green'. In fact the colour was always known as Sky, and the suffix, Type S, applied equally to Dark Green and Dark Earth. All were to specification DTD 308/Type S. I have not yet discovered to what Type S referred. The suffix was subsequently withdrawn.

Although batches of the colour may have varied, this should not have been really possible as the mixing proportions to obtain the correct colour were laid down in the specification. As with all colours, probably more so in those days, weathering caused a considerable change in tone and was more likely to be responsible for the variations seen. I would humbly suggest that the reason for the apparently richer colour was twofold—the sudden repainting of a large number of aircraft, which resulted in bright new under surfaces at least, and the initial appearance of an entirely new colour.

Returning to the Spitfire in European day fighter colours, the only subsequent changes made to the under surfaces were the introduction of the Black port wing (Dec 12, 1940), the re-introduction of all Sky, and the change to Medium Sea Grey (Aug 16, 1941).

There was, incidentally, another colour called Deep Sky, but this was a powdery cobalt blue, darker than Azure Blue (used on Middle East under surfaces), and specified for very high-altitude aircraft. This colour was used, for example, on the under surface of the Wellington Mk VI (production aircraft).

It is difficult to understand why there should be any doubt about the change on the Hurricane drawing from Dark Earth to Ocean Grey. Ocean Grey was the replacement colour for Dark Earth on European day fighters, not Dark Sea Grey as is so often quoted. It is interesting to read that the Hurricane drawing recording the change was produced on July 24, 1941, and finalised on Aug 26, 1941, because the Spitfire drawing was re-issued to cover the change to Ocean Grey on Aug 16, 1941—the closeness of the dates indicating a general Air Ministry order to the industry to change day fighters to Ocean Grey. Early in 1942 at Glosters we expected to see the F9/40

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.

prototypes, which were then rapidly taking shape, painted in the Dark Earth/Dark Green and Yellow scheme used on the E28/39. We were rather surprised to see Ocean Grey specified in place of Dark Earth, although they were of course intended for both experimental and operational development work.

The markings and camouflage drawing for the experimental Vickers Type 432 (F7/41) high-altitude fighter specifies Dark Green/Ocean Grey with Yellow under surfaces. I cannot see any justification for the suggestion that the Ocean Grey quoted on the Hurricane drawing was probably Dark Sea Grey. There seems little reason why the colour should not be accepted as true Ocean Grey. Dark Sea Grey was mainly a Naval and Coastal Command colour, and was, for instance, used in the grey and white scheme. It is certainly true that Ocean Grey was a blue grey.

Although I saw a number of Whirlwinds, I cannot recall seeing one painted light blue on the under sides. All those I recorded were either Sky with the Black port wing or Medium Sea Grey. During the War I was much connected with aircraft recognition, but I never met anyone who had any difficulty in identifying a Whirlwind. It was one of the most easily recognised of aircraft. It was not official practice to encourage recognition by colour as it had little value, except at very close range—which was then too late!

The stripes under the wings of Typhoons were an exception to the rule, but were intended to assist light AA gunners to identify the Typhoon from the Fw 190 in the few seconds left to them at close range, especially at times of poor visibility and high speed. The yellow leading-edge stripe was another example of close range identification colour, presumably to help fighter pilots to sort out friend from foe in the hectic moments of a dog-fight, when confronted head-on. As the Luftwaffe did not, as a general rule, use a similar marking, they probably found it equally useful in the reverse sense. To return to the original subject, if any Whirlwinds were painted as stated, it was probably for some special mission.

James Goulding, Lymington, Hants.

M. J. F. Bowyer writes: Mr Goulding's letter raises several points requiring comment.

Part 3 of 'Fighting Colours' refers to the origins of the Sky under-colouring of fighters. Instructions were passed to the fighter squadrons to paint their aircraft undersides Sky Blue (sic) and doubtless this led to the rather garish blue one saw on Hurricanes in the summer of 1940. In reality, what had been meant was that the colour applied would approximate to a tint best described as 'duck egg green'. In official instructions the colour was actually referred to at one stage as Duck Egg Green and it is wrong to merely pass it off as a journalistic phrase. Perhaps to clarify the position a new term was evolved, 'Sky'. This indeed did refer to the dark tone also called Duck Egg Green. It bore not the slightest resemblance to the Sky of later years. When the Sky adornments of later months were added—the band and spinner—these were of a very pale shade. The Sky Type S designation was certainly applied to this and the samples which I retained for 'future use' show just how great was the change in tonal value. An interesting point is that there never seemed to be any Spitfires wearing the deep blue referred to.

Our November issue carries a colour photograph of a Typhoon wearing the almost white variant of Sky—and comments from a reader later suggested the spinner and band were white. A check against my dope samples makes it very difficult to decide if the fuselage band was Sky.

Certainly weathering, touching up, etc, produced quite a range of tones on wartime aircraft, as indeed I have often pointed out. But in the case of Duck Egg Green there cannot be the slightest doubt that the 1940-41 version for under surfaces differed widely from the other. Apart from my own many observations at a range of fighter stations, the few photographs one can turn to for some evidence on colouring do clearly show how different were the spinner/band colours from the others.

Deep Sky was intended for the high fliers. For a time the Mosquito Mk XVs wore it, a curious shade something akin to the colouring of PR aircraft.

Ocean Grey, as such, with its very appealing blue tint, certainly was not used in 1941. Its tint was unmistakable. Whether the grey then applied, which lacked the blue tint, was named Ocean Grey or not, it was for sure that tone named Dark Sea Grey. It seems unlikely that the names were changed to accord with the tones, but this might provide a possible answer.

At the end of 1940 a special instruction was circulated pointing out that the black under-wing paint was to be 'removed' on a date given—except in the case of the Whirlwind, which would retain it 'for recognition purposes'. Rarity, oddity? What amazed me was that, in the same instruction, the order was made that the special blue finish beneath the wings would also be retained. This was worn

Continued on next page

Letters — continued

by a number of Whirlwinds that I saw, and was similar to the blue of the Hurricanes in 1940. One machine thus painted and at which I took a good look, I have mentioned in 'Fighting Colours'.

Wrong air force

MAY I offer Airfix my congratulations on producing the very neat little Angel jet? I would like to correct one small point in the review in the March issue, however.

You quote the markings supplied with the kit as those of the World Army Air Force. You appear to have misread the technical data supplied with the kit.

The Angel jet is an interceptor used by SPECTRUM, and was derived from the WAAF's Viper jet. Markings supplied with the kit are those of SPECTRUM.

May I suggest you rectify this slight error in your next issue, or you will have every SHADE agent in your district on your tail.

Yours, from the 21st century,
Michael Gething, Bournemouth, Hants.

Sorry—we hadn't seen this kit when the last issue went to press.—EDITOR.

Can-Am Porsche

I WOULD like to congratulate Airfix on the recent Porsche Carrera 6 kit, which must surely be the best model of this car available. Readers may be interested in the colour scheme of the Revson Porsche which was raced in the 1966 Can-Am Group 7 races. A broad white stripe runs down the centre of the body, the left-hand side of the car is blue and the right-hand side is red. The numbers (32) are medium blue on white discs with pale blue outer rings. This colour scheme is one of the most colourful in motor racing and is particularly distinctive for slot cars.

S. Lester, Blackpool, Lancs.

He 177 markings

MAY I congratulate Airfix on the kit of the Heinkel 177-A5. The transfer sheet, however, leaves much to be desired. Anyone familiar with wartime Luftwaffe coding practice will know Staffel colours were indicated by the first letter after the cross (not always—EDITOR), in this instance 'N' and not '9' as printed on the sheet.

Referring to a list of known Geshwader codes could not provide any clue as to

the identity of K9, which suggests that it was either an unknown unit, a factory code, or fictitious. At the time of the A5's operational career, Geshwader codes appearing before the cross were being painted on in rather small lettering or omitted altogether, sometimes leaving the Staffeln/Gruppe code the same size as before.

Although Staffeln or Gruppe colours were sometimes marked on rudder surfaces, the red rudder in this instance has no significance. The letter 'L' preceded by a yellow 'N' would indicate aircraft N of the third Staffel, first Gruppe. Each Gruppe was identified by a colour, in this case white, to aid recognition, spinners were painted in a combination of Gruppe/Staffel colours. Therefore an alternative, and a more likely rudder marking, would be a white 3.

Two final points to consider are the inclusion of the entire codes in small lettering on the fin and the use of outline crosses.

T. Hadler, Hounslow, Middx.

Crew wanted

I WAS pleased to read in the January issue of AIRFIX magazine that the Cutty Sark has been added to the fine range of 'Classic' kits.

One criticism of this range is, I feel, that the true scale of these ships is not readily apparent. If, for instance, a few figures were included in the kit then one would have a much clearer impression of the true size of the vessels. If painted well these figures would be a definite asset to the appearance of the model. The purists may argue that this would detract from the true purpose of the model, but of course the inclusion of the figures on the completed model would be a matter of individual taste.

Michael Walker, Lydney, Glos.
Figures are included in the Airfix Endeavour kit.—EDITOR.

504 night fighter

I HAVE just completed a simple conversion of the Airfix Avro 504K to the single seat night fighter version. First, the fuselage sides are stuck together and then the coaming around the front cockpit is removed. The cockpit is then covered with a piece of cartridge paper the same shape, but standing proud.

The holes for the wing gravity tank are then filled and two new ones are made between the first two ribs to the left of the centre section. A Lewis gun, complete with mounting, is added to the centre line of the top wing and the model is

completed as per kit. It should be painted in the standard khaki green/cream scheme with roundels from the kit and the serial number E.3273 in white on the rear fuselage.

Simon Lambert, Harrogate, Yorks.

Flying-off platforms

THE article by Ian Whitehead on converting the Airfix kit of HMS Warspite to her condition in World War I is most interesting.

With regard to the flying-off platforms fitted to 'B' and 'X' turrets it is stated that these were for the use of a seaplane. In the interests of accuracy, I think it should be pointed out that such platforms were in fact used by aircraft with wheeled undercarriages, namely modified Sopwith 2F1 Camels or 14 Strutters.

D. S. Male, Saltford, Bristol.

Exhaust stains

REFERRING to Mr Pring's letter on exhaust stains in the January, 1968, edition of AIRFIX magazine, I find that a little matt red added to the matt black helps to make the stain more effective. It is often wise to study photographs very carefully to find the size and position of exhaust stains on the prototype, and to under emphasise them rather than cover the model. This is also true with 'mud' on AFVs.

Incidentally, in the December, 1967, issue it was stated that the only kit of the Bell Iroquois on the market was made by Aurora/Fu'imi. In fact, there is a Monogram HU-1A to 1:40 scale.

C. B. Darke, IPMS, Fishponds, Bristol.

Making flags

I FIND that old polystyrene cement tubes are just right for flags, etc. Standards can first be painted on metal cut from the tube and then stuck to the pole. When the paint has dried, it can be bent to resemble the real thing in a wind. I made one such flag for use in the American Civil War.

P. J. Boyce, Leeds 15.

Matt transfers

ANOTHER tip for modellers who are having trouble in getting their matt transfers to stick on their models is to dip the transfers in the normal way and at the same time mix a small amount of Polycell and apply it on the area where the transfers have to go.

Use a bit of cloth to press down.
T. Pyke, Wigan, Lancs.

New Books—from page 306

line of this story, the take-over from William Dean at the turn of the century, the experiments with imported French De Glehn compounds and suchlike, is familiar to most. O. S. Nock throws much additional light gleaned from contemporary papers, from some of the engineers connected with the story, from other writers and from the vast wealth of his own knowledge. The result so far as Part 1 is concerned is an admirable account which not only sets out all the developments, failures and successes, in logical order but wherever possible explains them from statements made by Churchward or from events at the time. As well as detailed technical descriptions of the locomotives, their performance is analysed from dynamometer runs and many journey logs.

NEWS FROM IPMS

FIFTH Annual General Meeting of the International Plastic Modellers' Society will be held on Friday, March 29, 1968, at the Clarence Restaurant, Maple & Co Ltd, Tottenham Court Road, London W1 (nearest Underground: Warren Street). Doors open at 6.15 pm and formal business commences at 7.30 pm. Light refreshments will be available from 6.15 and after completion of business there will be a competition to select the best twenty 1:72 or 1:48 scale aircraft models for display at the IPMS-USA National Convention, Washington DC, next June. Any member can enter a model for possible selection. This will be followed by a showing of aviation films. Attendance is restricted to members only on this occasion.

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Would readers please note that all issues not listed above are now out of print and can no longer be supplied.

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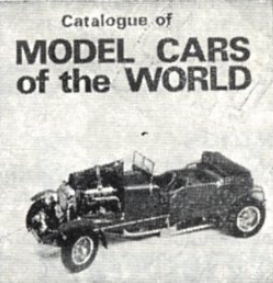
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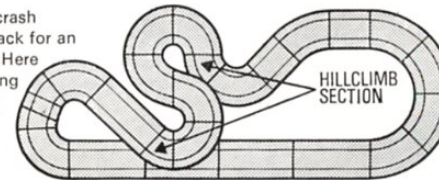
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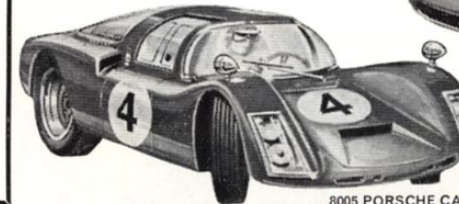
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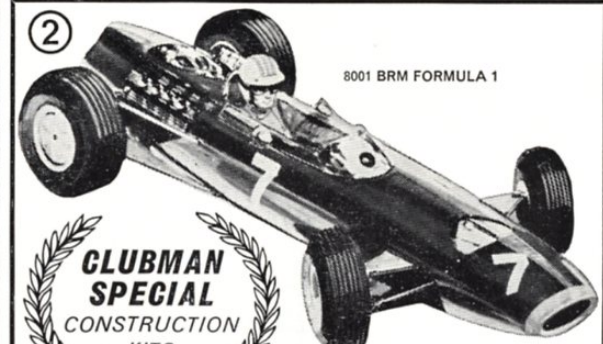
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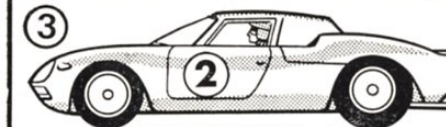
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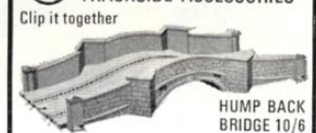
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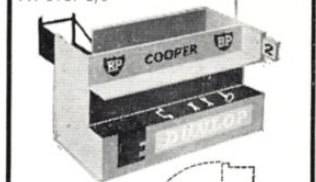


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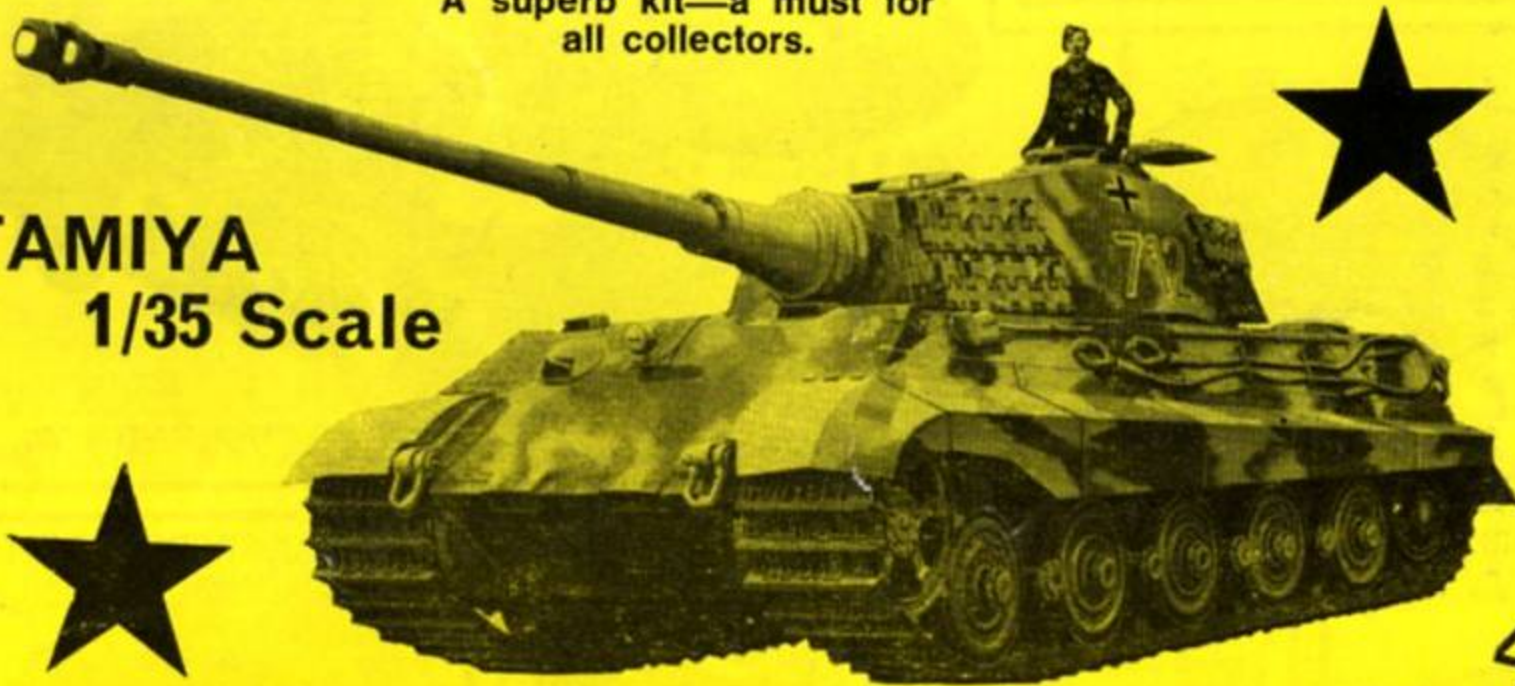
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